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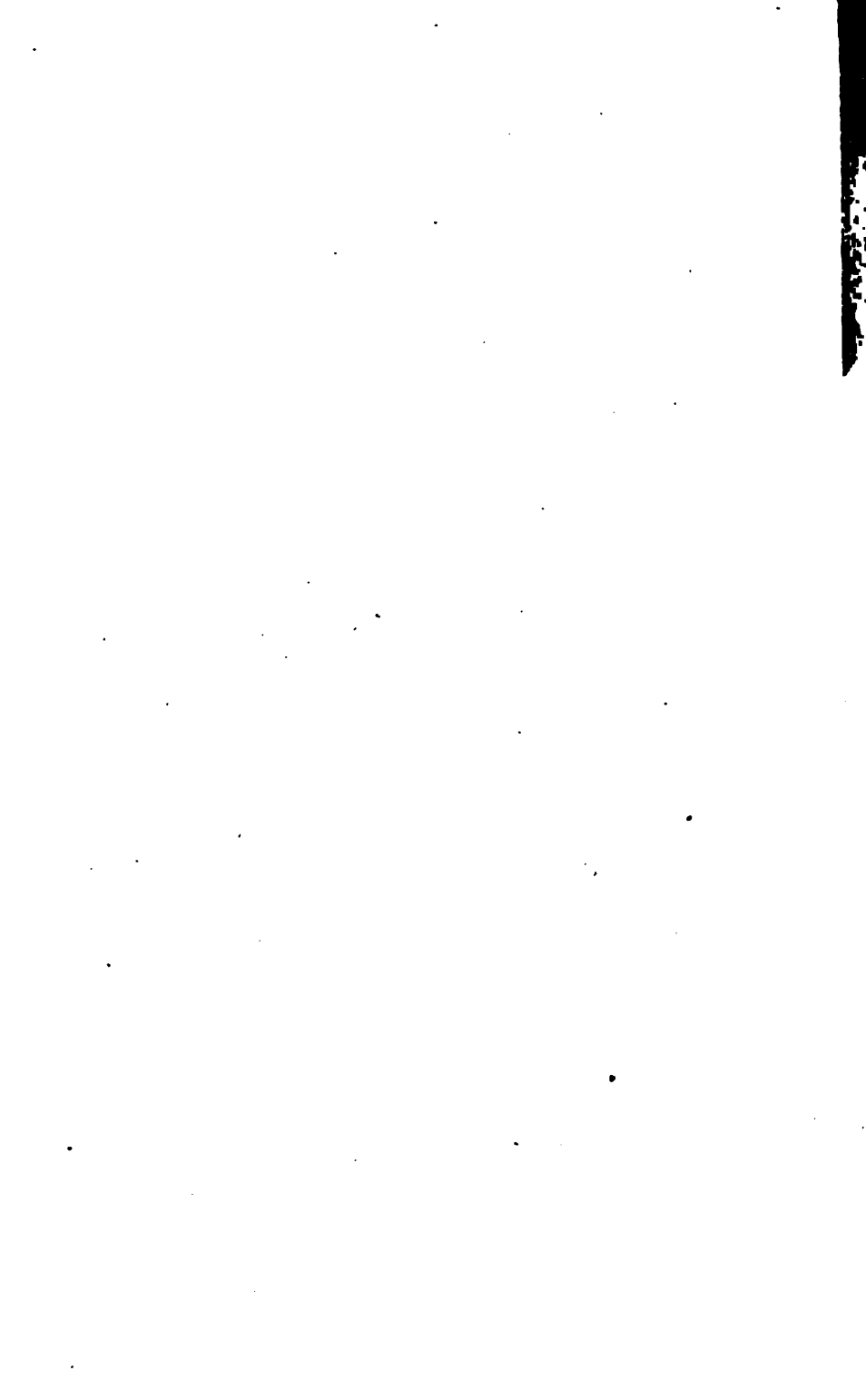
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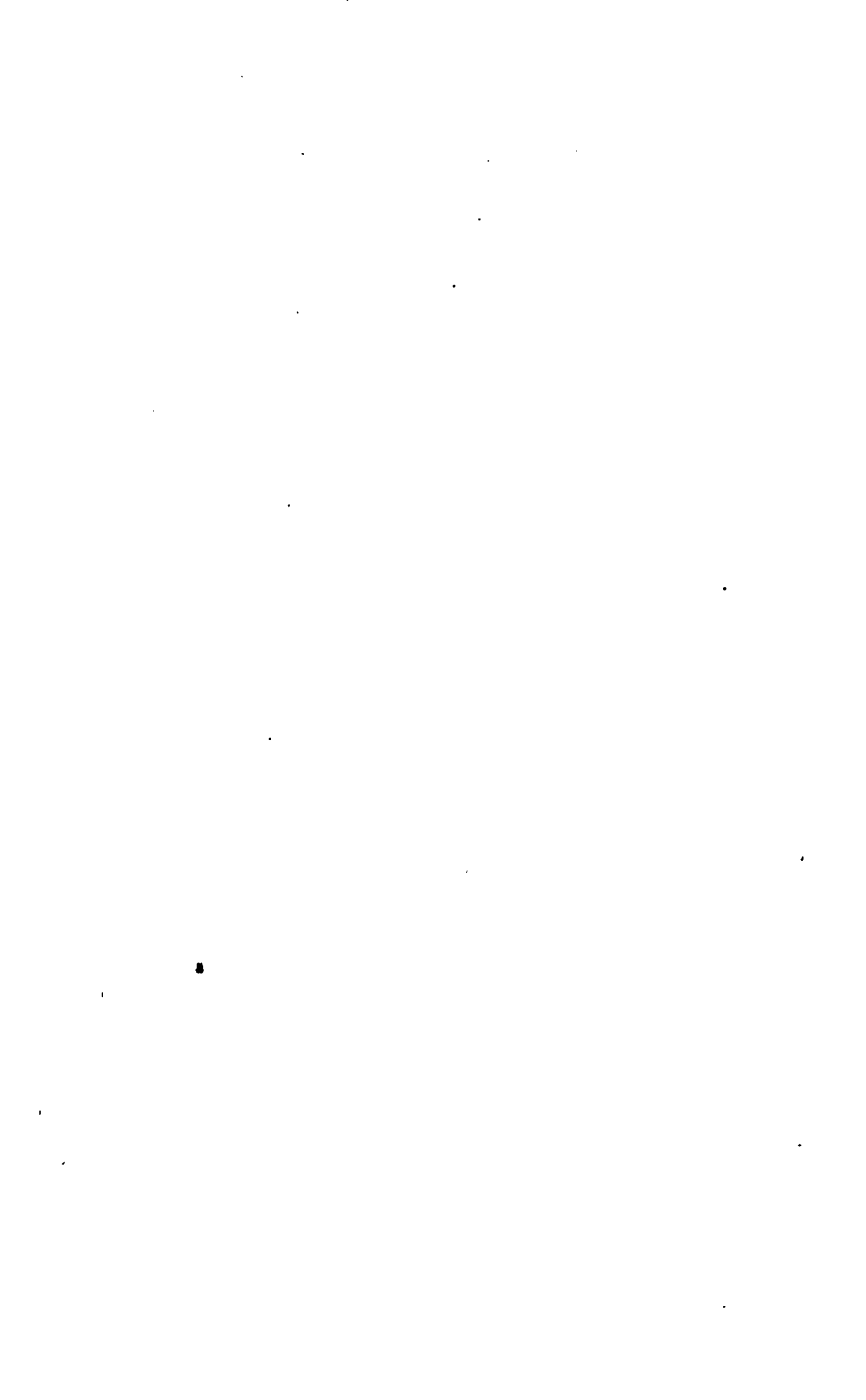
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THE
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OF
MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Two Cases of Lymphatism*.^{*} By GEORGE PEACOCKE, M.D., Univ. Dubl.; F.R.C.P.I.; Assistant Physician, Adelaide Hospital, Dublin.

IN the year 1901 I brought under the notice of this Section of the Academy a series of five cases of sudden death in young children. The *post-mortem* in each case showed a condition of hyperplasia of the lymphoid structures, especially the thymus, agminated and solitary follicles of the small intestines, and the mesenteric glands.

Two other cases have recently come under my notice, and I thought it would be of interest to give a very brief account of them:—

CASE I.—On Sunday morning, February 22nd, 1903, a child aged seven months was brought to the Adelaide Hospital by his mother. She stated that a few minutes previously he was eating a crust of bread, when he got what she described as a “choking fit.” She immediately carried him over to the hospital, but on arrival life was found to be extinct. He had previously been an apparently healthy child, was well nourished, and had all the appearance of being well cared for.

^{*} Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, May 22, 1903.

The same afternoon I made a *post-mortem* examination. The brain was healthy. There was no evidence of any laryngeal obstruction. The heart and lungs were normal. The thymus, which almost completely covered the heart, measured in its greatest length 102 mm., and in its greatest breadth 63 mm.; its volume was 37 cubic centimetres. The spleen was not enlarged, but on section the Malpighian corpuscles stood out as prominent white elevations. The mesenteric glands were universally enlarged and hard. The agminated and solitary follicles of the small intestine were distinctly hypertrophied, especially the former, giving the appearance usually found in the early stage of enteric fever. No other glands were enlarged, and all the remaining organs seemed healthy.

CASE II.—The second case was that of a boy aged one year and ten months, who was brought to the hospital on the morning of April 4th, 1903. His mother stated that he had had a slight cold for the past few days, but was otherwise a strong, healthy boy. She was leaving the house where she lived in Peter's-row to make some purchases, when she was called back, and found the child "looked queer." She carried him over to the hospital without delay, but on arrival there he was dead.

The same afternoon I made a *post-mortem*. The child seemed well nourished. There was slight evidence of rickets, consisting of some enlargement of the wrists and curving of the lower ends of the tibiae. The thymus was enlarged, measuring in its greatest length 100 mm., and its greatest breadth 70 mm.; its volume was 35 cubic centimetres. The spleen showed the same appearance as in the previous case. The mesenteric glands were enlarged, but there was no evidence of enlargement of any other lymphatic glands. Peyer's patches and the solitary follicles in the small intestines were also swollen, the hypertrophy of the latter being more marked than in the previous case. The other organs were healthy.

In Vierordt's Anatomical Tables, quoting from Friedleben, the dimensions of the normal thymus are given. Its greatest length from birth to nine months, 59 mm.; nine months to two years, 69 mm.; three years to fourteen years, 84 mm. Its breadth from 27 to 41 mm.; and, according to Krause, the length varies from 54 to 83 mm. The volume varies between four and twenty-three cubic centimetres.

In the cases I have described the thymus was, therefore, nearly double its normal size.

In the Report of St. Bartholomew's Hospital for 1902, Dr. Thursfield describes four cases of "sudden death in infants, associated with enlargement of the thymus gland," and thus summarises the points in common in the four cases:—"The sudden death, the absence of any lesion sufficient to account for death, the presence of bulky and heavy thymus glands, and the evidence of hypertrophy of the lymphatic tissue shown in the enlargement of the Peyer's patches and the solitary follicles, and in two cases of the lymphatic glands."

Dr. Laqueur in *La Tribune Médicale* narrates the case of a boy who, after inhaling about 30 drops of chloroform, suddenly died. Chemical examination showed the chloroform was pure. Necropsy showed hypertrophy of the thymus and of follicles at the base of the tongue and enlarged spleen.

Kemdrat has collected twelve similar cases, in all of which there was evidence of hypertrophy of lymphoid structures.

The cause of death in these cases seems quite obscure. There is no evidence to prove that it is due either to direct pressure on the trachea, or to pressure on the vagi in the neck by an enlarged thymus, as has been suggested. Pathological investigation has failed to corroborate the statements that it is due to coagulation of the blood, the result of thymus secretion, or that its cause can be attributed to the presence of certain toxins in the circulation.

The association of hypertrophied lymphoid structures and sudden death in young children is now an established fact, but further investigation is needed to discover the relation that exists between them.

ART. II.—*The late Cholera Epidemic in Egypt.** By GEORGE FREDERICK ALEXANDER SMYTHE, Lt.-Col., R.A.M.C., L.R.C.P. Edin., L.R.C.S.I., D.P.H., F.R.C.S. Edin., F.R.G.S.

CHOLERA, that great scourge of the East, may be looked upon as a comparatively modern disease, no authenticated record of it being in existence a century ago, and the people of India, "amongst whom it is now endemic," hold the tradition that it appeared together with the English in Hindoostan and will disappear on their departure from the country.

Many places in Southern and Central Asia have been settled upon as the birthplace of this dreaded disease, but Hurdwar, on the banks of the Ganges, and to which holy pilgrimages take place every year, is, no doubt, one of the greatest sources of its dissemination over the whole Continent of Asia, as I know of no year in which sporadic cases of cholera occurring in remote parts of India have not been traced to pilgrims returning from the holy fair.

During my service I have had the misfortune to have been the witness of four outbreaks of cholera, and each succeeding experience has quite upset the ideas that I had formed on the preceding one. Surprises always seem to be the order of the day, and the enemy invariably attacks from a quarter where least expected or guarded against.

One lesson, however, has been strongly impressed upon my mind, and it is, that as a rule it is by no means a water-borne disease. That the micro-organism is frequently conveyed to man by water in which it has found a convenient vehicle and place of multiplication is without doubt, but in my mind this is more accidental than the rule. Man himself would appear to be the prime offender, the one great source, not only of its cultivation, but also of its dissemination abroad and the means by which it is conveyed to distant places, remote from all chance of water contamination, but generally following the course of travel and roads traced by trade caravans.

I will not dip into ancient history by going into those stale accounts of the various epidemics that have occurred from year to year in India, but will endeavour to trace for your

* Personal notes taken of the late Cholera Epidemic in Egypt, and read before the Biological Club, Dublin.

information the more recent one that has just ended in Egypt, as it has opened up fresh points and given much food for serious reasoning over some of our former theories. Many points have been made clear, and others brought more definitely to the front, that will require to be thoroughly gone into and explained after careful research in the future. It is no time during the prevalence of an epidemic to make and proclaim theories that in cooler moments are easily proved to be fallacious, but rather to collect data and information that will assist and guide scientists, who in the cooler and less exciting retreats of their studies and laboratories can build up and prove theories founded upon the carefully tabulated experience of those who labour in the field of medical research.

During the last Mohammedan pilgrimage to the Shrine at Mecca, cholera manifested itself in a most virulent form, thousands of the pilgrims from all parts of the East perished, and the greatest fear was felt by the authorities of all Mohammedan States that on the return of the survivors the scourge would be introduced and spread amongst their dominions, and precautions were taken accordingly.

Egypt was by no means backward in this respect, and the Director-General of the International Quarantine Board, Dr. A. Ruffer, made every preparation that a scientific knowledge of the situation could deem necessary.

Tor, the quarantine station for Egypt, was specially prepared, a larger number of huts erected, and attendants provided for, as well as greater supervision by the police authorities. Every pilgrim was landed at that station, and had to remain there for ten days or such further time as might be deemed necessary by the quarantine authorities before he was permitted to return to his home, and no native returning from the Holy City was allowed to enter Egypt through any other portal. By these means many cases were detected and treated in the Lazaretto Hospital, and all were disinfected as well as their clothing before being finally sent to their homes. The station was closed, the officials scattered to their various duties, and many proceeded on their annual leave. A sigh of relief went throughout the official world, and found vent in the Press; people congratulated each other that the great

danger was over, and that they could leave their homes and businesses in peace and security to seek their annual rest in Europe.

On the 24th of July I received a wire to return at once to Egypt as cholera had broken out, and on arrival heard that it had made its appearance at a small town called Mousha, not far from Assiout, at a distance from the river, off of the line of rail, and not on any regular trade route. The first case was reported on the 20th of June, over a month having passed since the closing of the camp at Tor, and the last pilgrim party declared free of all contamination and fit to proceed to his home.

It was not long before it manifested its appearance in Cairo, introduced by refugees from up country, and soon had penetrated every quarter of the town, and though people died at the rate of from 100 to 150 a day, in no case was there the slightest chance of the water supply having been contaminated. The vehicle by which the micro-organism was carried from place to place was, without doubt, man and his clothing.

In Alexandria we were continually having isolated cases, but these were invariably introduced from without, and generally came from Cairo. Every precaution was taken that was possible. The water supply was guarded by a line of police, fifty yards apart, with barbed wire between. No boats were permitted on the Mahmoudieh Canal, from which the water was drawn. Instructions were given to the various communities by their Consulates as to the best domestic precautions, such as sterilising all food, &c., and then we waited for what we knew must come, and those whose business permitted of it left with their families for Europe.

The first case that transpired amongst the actual inhabitants of Alexandria was that of the cook of the Greek Patriarch. A friend of his had come down from Cairo to see him, and spent the afternoon in his company. On the following day he did not feel well and went to the Greek Hospital, where it was discovered that he was suffering from a well-marked attack of cholera. He recovered, but two other servants in the same house died. I made very careful inquiries into this case, and found that every article of food or drink consumed in the house was carefully sterilised by

boiling before coming into the kitchen ; it was therefore clear that that was not the source of contagion. The cook's friend did not develop any symptoms of cholera, but came from an infected district.

A couple of evenings after this I was asked to see, in consultation, an old Greek lady, aged seventy-two, who resided in the best European quarter of the town. I found that the day previous she had received a basket of mangoes from Cairo, and, having opened the package, she gave them to her maid to have them sterilised. They were taken into the kitchen and plunged into boiling water by the cook, and afterwards were eaten by various members of the family, but not by the lady in question. She, the maid, and the cook all contracted cholera, but those members of the family who ate the fruit felt no ill consequences. On tracing this basket of fruit I found that it had been gathered in a garden where there had been several cases of cholera. The fruit here was manifestly the carrier, as those who handled it before sterilisation contracted the disease, while those who ate it afterwards escaped.

The epidemic soon became prevalent throughout the town, but showed a marked preference for the European quarters of the suburbs, and large numbers of every nationality died, the greatest number being in that part occupied by the English colony, who suffered heavily.

The troops, however, who were quartered in barracks scattered throughout the whole of the most contaminated parts of the town, were peculiarly immune, not a case transpiring among them. This freedom I attribute to the three great precautions that were taken—viz., 1st, they were confined to their barracks, and no communion was allowed with those outside ; 2nd, all food and drink was sterilised before being allowed within the lines ; and 3rd, all those officers and men who by their duties had to go into the town, on their return were compelled to wash their hands before re-entering the barracks in a strong solution of mercuric chloride. In only two instances were there any cases of cholera amongst them, and both of these were in the families of married officers who lived outside of barracks in the English suburb of Ramleh, and therefore out of military control. As they are both typical of the way this disease is spread I will state them

briefly, since they are among the many that explain the method by which the poison is carried from person to person.

The first case was that of the son of Captain A. In this family, like all other European households, every precaution was taken about water, food, and contact with natives, but one morning the little boy was permitted to go for a drive with his governess and native groom, and, childlike, insisted upon taking the reins and driving himself. Two days afterwards he was seized with an attack of cholera and died. On inquiry I found that the groom or syce, who had come into contact with the child, lived in a house from which a cholera patient had been taken to the isolation hospital three days previous. The syce or groom did not contract the disease.

The second case was that of Captain C., in whose house all the usual precautions were taken. He came into barracks at 10 a.m. in his usual health; at 11 a.m., not feeling well, he went into a brother officer's room and lay down; at 11 45 I received a telephone message, and sent the orderly officer to see him, following myself at 1 15, when I found that he was already in a cyanosed condition and pulseless, and responded to no treatment, dying comatose at 3 p.m.—4 hours from hour of attack. On careful inquiry I found that his cook lived in a house in which a man had died from cholera. The cook himself did not contract the disease.

After this date the epidemic gradually subsided until about the 12th of October, when there was a recrudescence caused by the arrival in the market of the fresh dates from the cholera contaminated gardens of Rosetta; this sent up the number of cases at once, but the energy of the sanitary department soon got them under, and they gradually declined until they ceased altogether, about the end of November.

Having stated the foregoing facts, we may now examine them and reason as to their cause.

First.—How was it that cholera broke out at Mousha, a town of no importance, far removed from the caravan routes and usual roads of intercourse, instead of at the seaports, where it naturally might be expected?

Secondly.—How was it carried throughout the length and breadth of the land, when it must be clearly understood that the water supply was uncontaminated beyond doubt?

Thirdly.—Why was it that on its being conveyed to Egypt by the returning pilgrims from Mecca it did not visit Turkey, Tripoli, Tunis, Morocco, and other places to which pilgrims returned, and which took fewer precautions and were devoid of any idea of sanitary measures of the most primitive description?

Fourthly.—Why was it that Europeans living under the best of sanitary conditions suffered proportionately to a greater degree than natives, who live under a condition of things too primitive for words to duly express?

Fifthly.—Why was it that the mortality (97 per cent.) was so enormous after all these years of careful research and humanitarian treatment of the sick?

In answer to the first query, perhaps it will not be out of place to quote a statement made by one of the most eminent and experienced bacteriologists of the day. In the course of an interesting conversation, during the height of the epidemic, he stated that he had come across, while at Tor, a man who three months after the possibility of infection had an attack of diarrhoea, from which the micro-organisms or Koch's spirillum of cholera had been isolated and freely cultivated. It is, therefore, altogether possible and even probable that a similar instance occurred at Mousha, and that some one man, who had successfully passed through the ordeal at Tor, proceeded to his home with the spirilla dormant in his enteric system, and that it did not develop its full force until some considerable time after his arrival. In no other way can this strange outbreak be accounted for, as every precaution was taken as to disinfection of clothing, &c., and it was quite impossible for any returning pilgrim to enter Egypt without first passing through the observation station and remaining under control for ten days. And when it is further considered that, after having been carefully preserved in a damp, moist atmosphere for over a twelvemonth, earth in which cholera excreta had been mixed gave cultivations of the "cholera spirillum" in the most active form, it cannot be looked upon as a very far-fetched theory if a similar origin as to the cause of the late outbreak be suggested.

In answer to the second question—as to the mode of transit from place to place—I have not the slightest hesitation in

stating that it is man himself, and from the cases that are now laid before you, which have been gathered from amongst hundreds of similar ones, it is clear that a person may be the carrier, although free of the disease himself. In the East it is usual for a person to cleanse himself by means of his hand and a little water or sand after the act of defæcation. Can it then be wondered at if the hand which has been used for such a purpose by a patient suffering from the earlier stages of cholera should become the principal means of its propagation, contaminating as he must everything that he touches? That water is sometimes contaminated I consider to be more accidental than the rule. The micro-organisms increase and multiply freely under such circumstances, but would appear to soon spend their force and rapidly become attenuated and disappear. Damp, warm earth, shaded from the rays of the sun, would seem to be the place of all others most suited to their preservation.

In answer to the third question I can say nothing. Pilgrims returned to all parts of the Mohammedan world infected with cholera. In most of these countries there is no word in the language that expresses the idea of sanitation or cleanliness. The precautions taken against the advent of the scourge were half-hearted, the race being so fatalistic and the officials utterly corrupt. Yet they were free; and Egypt, under British control, was singled out as the one place for attack. It is a mystery that I trust will soon be explained by the searching inquiries that are being conducted by the quarantine authorities. That the Europeans, living under the most approved rules, should have proportionately suffered more severely than the natives I attribute to the fact that at an early date the markets where vegetables were sold became infected, and although many representations were made to the authorities, they neglected to either close or control them. They were thus the means of spreading the disease amongst those households whose native cooks frequented them.

In answer to the fifth and last—as to why the mortality stood at the enormous percentage of 97—it must be explained that it was only those cases who died in hospital or recovered in hospital, added to those who were found dead in their

houses or the streets, that were returned at all. Those who were treated and recovered in their homes were not usually reported, since all Easterns, and Mohammedans especially, have a profound dislike to the privacy of their domestic life being broken into by the authorities, especially sanitary ones, and any practitioner reporting a case would most certainly not be called in again.

From this most interesting epidemic we should look for much information in the near future; far more than we have been able to collect in the past, when facts have been obscured and almost obliterated by the obstinate deception of the native, whose mind is so imbued by the idea that to divulge the truth will do him some harm that it is almost impossible to extract reliable statements from him. This time, however, the epidemic spread more amongst the Europeans and educated natives who have been only too willing to give every information in their power, and for once in the history of the world the European consular authorities united to assist and not to thwart the English in their efforts. This was unparalleled in the history of Egypt, where even in our attempts to stamp out disease and control immorality we are only too frequently hampered by the representatives of the European powers, for political reasons.

Having thus briefly traced the course of this, the latest, epidemic, and one dangerously near to the shores of Europe, perhaps it will not be out of place if before closing we briefly examine into its most successful lines of treatment.

I have tried most of the systems which have been advocated, and have found them all most unsatisfactory and unreliable. The disease is too sudden in its onset and short in its course to allow of any medical treatment being effective. In the Italian army the early administration of calomel is strongly recommended and has much to be said in its favour, provided that you could give it to the patient the day before he developed the attack, for there is little chance of its doing any good afterwards, as owing to the extreme irritability of the stomach it is expelled as soon as swallowed. The French are in great favour of trying to control the diarrhoea by means of strong acid astringents, which I have found equally futile. No drugs administered by the mouth can be depended upon, as they are

expelled as soon as taken in the first or stage of onset, and lie unabsorbed in the stomach in the second or stage of collapse. But I can speak highly of a symptomatic course of treatment if carried out by means of hypodermic injections. Of these I have found morphin, in the first stage, of the greatest benefit, easing the cramps and lessening the irritability of the stomach. In the second, or stage of collapse, strychnin and saline injections into the tissues under the arm or over the abdomen, until reaction sets in; but, unfortunately, as soon as this takes place the vomiting and diarrhoea again set in, and a relapse is the result. These remedies should be administered with the hand on the pulse and a halt cried as soon as the heart responds. A step beyond this is almost certain to produce a profuse discharge from the bowel and a return to the stage of collapse. In former days it was not recognised that during this stage the stomach ceased to perform its functions of absorption, and that drugs administered by the mouth simply lay there inactive, and frequently accumulating, due to the ignorance of the medical attendant, until reaction set in, when the stomach, resuming its functions, found itself loaded with large amounts of, perhaps, dangerous compounds, with the result easily imagined.

In the third, or reactionary, stage danger is practically over, and it is then a case for careful nursing, conducted on the lines of that for enteric fever.

If taken in hand energetically at once upon its appearance I do not think that it is at all difficult to control and suppress an outbreak; but, unfortunately, English officials are so afraid of interfering with the liberty of the subject that they generally allow it to gather such force before exerting themselves that in the end they lose thousands where hundreds alone would have been victims if they had used at first the strong repressive measures to which they are generally compelled to resort in the end.

It is difficult in all epidemics to gain the permission of the relatives for the body to be examined after death, but this is most so in a Mohammedan country, where it is looked upon as sacrilege, and at once becomes a burning religious question, that frequently leads to riots and loss of life if insisted upon. But if after death we make an autopsy, we will find all the

signs of a state of great gastro-enteric irritation. The stomach is congested and inflamed in patches, and has somewhat the appearance of that caused by irritant poisoning, and is either empty or contains a little fluid, the result of the fruitless though well-meant efforts to treat the malady by drugs through the mouth. The small intestines are congested and inflamed, empty and collapsed. The large intestine is in a similar condition, and occasionally gangrenous. All the other organs are more or less congested and disorganised, but especially so the kidneys, which are frequently of a deep maroon colour, but in no case, I believe, has it been possible to detect the micro-organism in these tissues, it being found in the enteric tract alone. There is one sign, however, that is not seen in any other disease, and that is the peculiar black, tarry condition of the blood in the veins, due to the draining away of all its watery material, leaving it thick and sticky like pitch.

In conclusion, I should like to remind you that during the Dongola Expedition, in 1895, cholera broke out amongst the Anglo-Egyptian Army on the right bank of the Nile, and kept pace with it in its advance against the current of the stream. In no case did it attack the natives ten miles in front of our advanced guards, nor did it invade the left bank of the river, which was immune and served as a sanatorium. If the water had been contaminated those on the left bank ought to have suffered as well as those on the right. Again, it should not have spread and advanced against the stream, which flows, as a rule, six or eight miles an hour. Advancing with our advance, and halting with our halts, the poison was clearly being carried along by our own troops, and it was only on this fact being recognised and precautions duly taken that the epidemic was suppressed and the army enabled to advance against the Dervishes

ART. III.—*Notes on a Year's Asylum Work.** By W. R. DAWSON, M.D., Univ. Dubl.; F.R.C.P.I.; Medical Superintendent, Farnham House, Finglas, Co. Dublin.

As usual for some years past, I venture to bring forward notes on some of the more interesting points which have arisen in the practice of the year ended on March 31st, 1903.

Causation.—Again dividing the causes of mental disease broadly into the three groups of inherited diathesis, moral and mental wear and tear, and intoxication, the fresh cases of actual insanity admitted during the year may be distributed as follows, the cause assigned being that which appeared to predominate, though not necessarily the only one:—Neuropathic diathesis, 36.36 per cent.; moral and mental wear and tear (including epilepsy), 54.54 per cent.; intoxication, 9 per cent. In the great majority of the cases more than one factor was operative, and distinct neurotic heredity, direct or collateral, was present in nearly 73 per cent. This is lower than in the admissions of the previous year (78 per cent.), but certain cases have not been included, in which nothing more marked than passionate temper, eccentricity, or obvious "nervousness" in the relatives could be ascertained. These cases, taking all circumstances into account, were certainly neuropaths from birth, and therefore, it may be assumed, derived their diathesis from their ancestors, so that they should probably be included. If this be done the percentage rises to 90. As before, moral and mental wear and tear is mainly responsible for more cases than either of the other groups of causes, but the share of intoxication is by no means fairly represented by the small percentage in which it seems to have played the leading rôle. In one form or other it was probably a factor in more than half the cases, not counting a case of morphinism, sane on admission, which has not been included in the above numbers.

Dementia Præcox.—Next to the forms of mental disease which exist from birth or early childhood, imperfection in inherent power of development is most distinctly shown by the group of diseases which Kraepelin brings together under

* Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, May 22, 1903.

the above name—viz., hebephrenia, katatonia, and paranoid insanity. These forms of disease, of which the last is somewhat indeterminate in character, all resemble idiocy and imbecility in being due to developmental arrest, but in them the development has reached a more advanced stage. Furthermore, they are not mere arrests, but are all characterised by a premature involution, a tendency to rapidly supervening dementia, after a comparatively short stage of more acute insanity. A case of *hebephrenia*, of the early part of which an account was given in last year's notes, was re-admitted on May 24th, 1902, having relapsed after a remission of a few weeks. A full study of this case has been published recently,* but the following is a brief summary of it:—

CASE I.—The patient, a lad aged eighteen, with some neuropathic heredity, was admitted on March 1st, 1902. He had led a solitary, unhealthy life; had masturbated for some years; and, shortly before admission, had made a fatuous attempt at suicide, which was the immediate cause of his being sent to an institution. He was very depressed at first, and full of delusions of a hypochondriacal and suspicious character, and was physically run down. Under tonic and outdoor treatment he rapidly improved, both physically and mentally, and was discharged in about six weeks. After a fortnight, however, he began to manifest signs of relapse, and on re-admission he showed the same delusional state of mind as before, but in less acute form, and without much depression. He had glycosuria for a few weeks at this period, but it disappeared under dieting, and has not returned. He was brooding, suspicious, and somewhat depressed; full of elaborate delusions of influences at work upon him, and, at the same time, occasionally of his power of benefiting mankind if not "imposed upon," as he put it. There were also hallucinations, occasional fits of noise, and once or twice violence; and, with intervals, he continued to practise self-abuse. Towards the end of his residence here his delusions and hallucinations appeared to be passing off, but there was no marked improvement otherwise, and on the whole he was less intelligent, though in this respect there was some slight improvement before he left. He was removed last January by his father, who wished to try a modified hydropathic treatment. This has done no good, and his prospects are probably hopeless.

* Journal of Ment. Science, April, 1903. P. 303.

The patient's age, and the course of the illness so far (early depression with a futile suicidal attempt, delusions and hallucinations gradually passing off, a remission, some mental weakness, and the general character of the symptoms), render the case a fairly typical example of the first variety of dementia præcox. The following probably belongs to the second variety, katatonia :—

CASE II.—The patient, a married but childless woman, aged thirty, was admitted early in last June. She had a bad family history, and is said to have been peculiar for a considerable time ; and she had become connected with one of the more emotional religious sects. Over a year before admission she imagined that she was being preached at in church, and shortly afterwards became acutely insane. This passed off almost immediately, but during the summer and autumn of 1901 she was melancholic, and had depressing delusions on religious matters. After a short improvement she somewhat suddenly became violently excited, with grandiose delusions, also of a religious type, and apparently hallucinations. This was followed by a period in which she was perverse, from time to time stuporose, and wet and dirty in her habits, while the elevated delusions continued. In the beginning of 1902 she refused to speak for six weeks. She then became more variable, but on the whole was perverse and obstinate, sometimes wet and dirty, and inclined to expose herself, with delusions of being damned. Except for a day or two at first, she has, since her admission, almost up to the end of March been in a state of resistive stupor, as a general rule lying quietly with her eyes closed, having almost invariably to be tube-fed, and passing under her. She almost always refused to wear night linen, but retained her clothing during the day as a rule. When any attempt was made to move her she would resist violently and viciously, spitting and struggling. In the summer she was submitted to a course of thyroid feeding, but was only partially roused by it, and soon relapsed ; and of the other drugs tried, the only one which produced any marked effect was, curiously enough, trional, given in 10 gr. doses thrice daily. Under this she always roused somewhat, but it soon lost its effect. Towards the end of March, after a period of still deeper stupor resembling coma, the resistiveness seemed to be passing off, and some elevation took its place, and on the 31st she walked downstairs and in the grounds. There have been some other signs of improvement, notably the return of the

menses, which had been in abeyance during the autumn and winter; and the future course of the case is a matter of much interest. It may be added that she seemed, so far as could be judged, to retain her perception of what was going on around her, and on one occasion, when frightened by another patient's screaming, she even got up and left her room, and was more rational for the remainder of that day.

The succession of melancholia, mania, and stupor, the resistive character of the last, the delusions and hallucinations, as well as other features in the course of the case, all point to katatonia; but some further observation is required before the question can be absolutely settled.

Stuporose Melancholia.—It is probable that some writers would include the following case, admitted during the year, in the category of katatonia. It seems, however, to be an excellent example of a form of stupor which is not katatonic, for reasons which will be seen later :—

CASE III.—The patient, a married woman, aged thirty-three, comes of a nervous family, though no neuropathic history has been elicited. She had sustained a severe fall on her head when out riding some 15 years before, and had frequently suffered from headaches since. Just before the present attack she had had an abscess in one of her fingers. She is said to be naturally rather sulky and obstinate, but very nervous; and for about two years has been worrying unnecessarily about a certain action on the part of a relative. Early in 1902 she became parsimonious, and then acquired delusions of having no money (even when she had £7 or £8 in her pocket at the time), and grudged necessary expenses. Next, she thought that the police wished to arrest her for starving her household, and then began to dislike her husband, and to refuse food. On one occasion she is said to have attempted suicide. Various measures, such as change, Weir-Mitchell treatment, &c., were tried without avail, and finally she was sent to Maryville. On admission she was very emaciated, looked much older than her years, and was stuporous and resistive, but no organic disease could be detected. Her physical condition has considerably improved under treatment, but mentally she remains much the same. Her state varies frequently between a quiet stupor, in which she sits or stands motionless and silent (mutism) and often allows her limbs to remain for a short

time in any position in which they are placed (catalepsy), and a state of acute restlessness and resistiveness, in which she looks intensely miserable and is very noisy, repeating one cry for hours in an automatic sort of way (verbigeration). Even in the latter state, however, there is still a great deal of stupor. She has frequently to be tube-fed, is wet and dirty in her habits, and at times wakeful at night. Occasionally she recognises her relatives when they come to visit her, and seems glad to see them, but not always. Various forms of special treatment—thyroid feeding, lavage, morphin or opium hypodermically and by the mouth, and latterly over-feeding—have been tried without much apparent result, at least on the mental side ; but the case is by no means a hopeless one, and improvement may appear at any time.

It will be seen that such a case differs from a typical one of katatonia in the absence of marked heredity, of a maniacal stage and exalted delusions, and of a tendency to remissions, as well as in the existence of marked depression all through. It seems, therefore, more accurate to call this form of disease by the name at the head of this section.

Transition Cases.—Lying somewhere between dementia præcox and paranoia are certain cases of hereditary psychosis, perhaps more commonly seen amongst the educated classes than in public institutions, which are not always technically insane, but always seem to be trembling on the verge of insanity. Such patients may not have actual delusions, but they often betray a delusional attitude of mind, shown by morbid opinions and distorted views of their own condition and of the actions of others. They are always imagining slights, and doubtful of the affection of their relations, or of the fidelity of their husbands or wives, as the case may be ; or again, they may show their mental unsoundness chiefly by ill-judged or immoral conduct, and are then sometimes set down as cases of "moral insanity." They may easily become dangerous to themselves or others, and their prospects are naturally far worse than those of most sufferers from pronounced acute insanity. Two voluntary boarders admitted during the year belong to this class.

CASE IV.—A girl of twenty-six, with very bad heredity, had the following history:—She had led a healthy, open-air life, but

appears to have had a tendency to morbid sentimentalising. She was more than once engaged to be married, and latterly had shown sexual excitement and practised self-abuse. After an attack of what was possibly influenza, she became depressed, broke off an engagement, and began to try to run away from home, sometimes insufficiently clad; and finally she exposed herself on several occasions in a condition of complete nudity. These acts were impulsive, and ordinarily she was to all appearance reasonable enough. She was thin and nervous on admission, seemed in poor general health, and was somewhat depressed, with high blood-pressure. She deplored her loss of modesty and truthfulness, which she said was so much the reverse of her usual character, but during her residence she showed neither the one nor the other. Under tonic treatment she improved much, both mentally and physically, and was discharged, to all appearance well, in about three months. She was not properly looked after nor judiciously treated, subsequently, however; and about two months after her discharge, a successful attempt at suicide terminated her existence.

In this case there was no evident intellectual disturbance at all commensurate with the disorder of conduct, for which no satisfactory reason could be elicited from her. In the following, however, the mental disturbance was considerable:—

CASE V.—A married woman of thirty-one, also with some neuro-pathic heredity, had a history of an attack of puerperal mania about seven years previously. She had always been of a passionate temper, and her past had been such as to imply a degree of moral imbecility. Latterly she and her husband had been living in a lonely district, and her sexual health was very bad. She was always jealous of her husband, but of late became frantically so, alleging misconduct on his part with her governess; and she would give way to ungovernable outbursts of passion, using the vilest language. There were no real grounds for her jealousy, but she twisted and distorted every occurrence to support her belief in her husband's inconstancy; and she had very little reticence, and would readily detail her fancied wrongs, sometimes publicly and passionately, but when quiet in a more or less reasonable manner. She ate and slept very little, and was rapidly losing weight—a fact which appeared to afford her some gratification. She was very hysterical, and had a number of hyperæsthetic areas in various regions, and

she suffered from endometritis, retroflexion, and fissure of the os uteri. She improved somewhat under treatment, but became worse again, and after two months returned home. She was no better there, however, and as a last resource she was, by my advice, submitted to a course of Weir-Mitchell treatment, which seems to have been of benefit, though continued mental well-being is unlikely.

A Case for Diagnosis.—The following case is exceedingly interesting from the point of view of diagnosis :—

CASE VI.—Business man, aged forty-eight, married. Very bad heredity, both direct and collateral. Always quiet, courteous, reserved, religious, and free from vice ; dull, but a good business man. Venereal disease excluded. After a spell of over-work and anxiety he suffered from influenza, and about 15 months before admission he had one or two very transient attacks of excitement, and grew depressed and hypochondriacal, with loss of will-power and self-confidence, and of ability to transact his business, of which latter fact he was aware. This condition lasted with some slight improvement for about a year, and then, when on a visit, he suddenly changed completely, became jovial and fond of practical jokes and of playing the fool. He was full of absurd conceit about his abilities, and talked of being a poet and a composer, of bringing out a play, and of making £100 by publishing a silly article which he had written. His appetite became voracious, and his inclination for sexual intercourse greatly increased. On admission the pupillary reaction to accommodation was found to be sluggish, and in one eye the consensual light reflex was slight. Subsequently commencing optic atrophy was found, most advanced in the left eye, the pupil of which was large ; and there was some photophobia and dimness of vision. (The patient had sustained a blow on this eye about a year before, and sight had been failing for some time.) There was some fibrillary tremor of the tongue, and slow speech, with slight slurring of certain letters at times (this was only at first), but the knee reflexes were normal, and there was nothing remarkable about the gait, and no apparent decrease of muscular power. The mental state was marked by elation, with an absurd opinion of his powers in all directions, and silly projects—*e.g.*, he intended to publish a song which he said he had written and composed, but which was simply "The Wearing of the Green" with a few alterations in the words. There was,

however, freedom from belief in absolute impossibilities. He was very angry at being sent to an asylum, made a determined attempt to escape, and kept grumbling at everything, but would change readily and become elated. He was also slightly hypochondriacal, and was emotionally variable. Tonic treatment was adopted, and in a month he showed some improvement. It was then decided to try iodide of potassium (although syphilis seemed to be excluded), and under this he continued to improve, and was sufficiently well to be discharged in three months, by which time he was much more rational, and agreed to abstain from business for a time, though he still maintained that he had not required asylum treatment. So far as is known, he has done well since his discharge about six months ago.

Had this patient been known to have had syphilis the case would undoubtedly have been set down as one of incipient general paralysis; indeed, although syphilis was excluded as far as it can ever be, general paralysis was the diagnosis arrived at by most of the medical men who saw the patient about the time of his admission, and it is not even yet absolutely negatived, as the apparent improvement may be merely a remission. Still, the physical symptoms were very badly marked, and the ocular phenomena present were to a considerable extent accounted for by the optic atrophy, which may have been started by injury, as stated, so that possibly we have to do merely with an attack of reactionary simple mania, following an exhaustion melancholia in a neurotic subject. In any case the further history of the patient is a matter of interest.

Chronic Morphinism.—The following is worth notice on account of the unusual ease with which the drug was discontinued:—

CASE VII.—The patient, a young medical man, free from neuro-pathic heredity, who had been a keen student and an athlete, began to take morphin for the purpose of relieving the sensation of fatigue from over-work in his profession. At first he took pharmacopoeial doses, but for about 18 months before admission his daily quantity was 6 to 8 grains. He found that the effect was much the same whether the mode of administration was oral or hypodermic; in the former case he used the dry powder.

Fortunately, beyond relief of fatigue and avoidance of the abstinence symptoms, the drug produced no pleasant sensations, and was of late taken solely to obviate the latter. The bodily effects were muscular weakness and wasting, with some digestive disturbance (nausea and vomiting, especially in the morning). There had been no necessity to increase the dose for some time before admission, and, as a matter of fact, it must have been much in excess of his requirements. As just before admission the daily quantity had been reduced to 1 gr. without causing discomfort, and with the result of stopping all digestive trouble. On admission he looked pale, debilitated, and nervous, and if left too long without morphin began to suffer from restlessness, muscular twitchings, and cutaneous sensations resembling that produced by the plucking out of hairs. These, with wakefulness, were the only abstinence symptoms, and appetite and digestion have been good throughout. Only on two occasions since admission was he given more than 1 gr. in the day, and in 17 days the drug was stopped altogether. No unpleasant symptoms or cravings have occurred in the intervening period of nearly six months, and under tonic treatment he has become strong and well, and able to do some mental work.

The patient's clear heredity and previous healthy life, combined with the absence of any seductive effects from the use of the drug, are doubtless accountable for the ease with which its discontinuance was effected in this case. It may be added that he was himself most anxious to be cured of the habit.

Physical Accompaniments of Mental Disorder.—The two deaths which occurred during the year were both due to heart-failure in old persons, who were the subjects of *chronic nephritis*. Both were cases of melancholia, and it has been our experience that depressive states of mind are the psychoses which most commonly accompany chronic renal disease. One of the patients, however, showed great mental improvement before her death.

Systematic periodical examination of the urines led to the discovery of small quantities of *albumen* in six other cases, but in all but two (a melancholic known to be suffering from chronic nephritis, and a case of cystitis) it was quite transitory. All the cases were more or less depressed, except one.

In the same way *glycosuria* was found in no less than eight cases, but only on one or a few occasions, except in that of a single patient. The cases included: chronic melancholia, 1; acute melancholia, 1; stupor, 1; hebephrenia, 1; katatonia, 1; chronic mania, 1; dementia, 1; and a case of minor epilepsy, who had several attacks of acute insanity during the year—more than he has ever had before. In this case the glycosuria still persists, but exerts no apparent influence on the bodily health. His mental state is usually one of mild depression, but the acute attacks began with exaltation and passed into very acute delusional melancholia. Thus all the cases, except one, display a somewhat depressed state of mind—a result which, upon the whole, harmonises with previous observations.

The *mean arterial pressure* was observed in two fresh cases, and fresh observations were made in two of the former ones. In both of the fresh cases it was elevated, one being the case of katatonic stupor, and the other, the fourth case described above, which was, it will be remembered, somewhat depressed. In the older cases, one of subacute melancholia showed a normal pressure, and in the second, one of acute melancholia, the pressure failed to fall with improvement in the symptoms. It was, however, unfortunately not taken after full recovery.

Physical Health.—The health of the Institution during the year has in general been good, and there have been no epidemics. The only case calling for notice under this head is that of a lady of sixty, who had a severe attack of streptococcus cellulitis last winter, which appeared to be cured entirely by anti-streptococcus serum.

CASE VIII.—On December 4th she inflicted a slight cut on the back of her right hand, which speedily inflamed, and in spite of antiseptic applications the inflammation continued to spread. On December 7th free incisions were made, but they only served to relieve tension, as there was very little pus. Mr. E. H. Taylor was called in consultation, and as the inflammation continued to spread and right-sided pleurisy developed on the 13th, he advised a resort to serum. 20 ccs. were injected on the 14th, and 10 ccs. daily on the four following days. On the 14th a systolic bruit was audible towards the apex of the heart, and on the 18th the left popliteal vein was found to be thrombosed, with oedema of

the leg. Nevertheless, the patient began to improve from the time of the first dose, the unfavourable signs all passed off, and she made an excellent recovery, uninterrupted except for a slight feverish attack, with rash on the elbows and knees, due to the serum. As has not infrequently been observed in such cases, the patient's health, both bodily and mentally, is actually better since this attack, but her insanity is of too long standing for any great degree of improvement. It may be added that streptococci alone were found in cover-glass preparations made from the pus.

Treatment.—Five patients were subjected to *thyroid treatment* during the year. One of these, a case of recurrent melancholia, which was treated in the same way in the previous year, continued to derive considerable benefit from 5 gr. doses of the dried gland thrice daily, given only during the attacks, which appeared to be mitigated thereby, both as to severity and duration. In the other four cases, which included two of melancholia (one stuporose), one of katatonia, and one of subacute mania, the drug was given in large doses for a short period, during which the patient was treated as if suffering from a slight fever. The first patient, one suffering from melancholia of about a year's standing, received 460 gr. in 9 days, and reacted well physically. No change took place at first, but she soon began to improve, and was discharged on probation in about three months. Unfortunately, the improvement has not been permanent, and she has since returned. The katatonic patient received 630 gr. in 11 days, but although there was fair physical reaction, any mental improvement was very transitory. The case of stuporose melancholia was treated with 445 gr., spread over 8 days, but showed no mental improvement, though this is one of the cases where such might have been looked for. The patient suffering from subacute mania took 475 gr. in 9 days, and showed marked, but not very permanent, improvement soon afterwards. Thus, the results this year were not very remarkable, though in three cases more or less improvement, unhappily only temporary, did take place.

Suprarenal administration was tried in two cases. In the first, one of acute mania, doses at first of 10 gr. and later of 15 gr. were given for about a month, during which the patient

certainly improved, but as some improvement continued after they were stopped it cannot certainly be claimed as due in the first instance to the drug. In the second, also of acute mania, doses rising from 10 gr. to 20 gr. thrice daily were given on about 10 days, with no apparent effect. Later on the administration was repeated and seemed to have no effect at first, but marked improvement took place on the day on which the drug was stopped, which may have been due to reaction, or may have been a coincidence.

This last case, which was a very difficult one on account of the acuteness and violence of the symptoms, derived considerable benefit from hydropathic treatment in the form of the wet pack, combined with over-feeding. The pack, which was tried by the suggestion of Dr. Conolly Norman, was used for about 8 hours daily for some weeks, and was the first therapeutic measure to yield any good result. The most marked effect, however, seemed to be produced by the free administration of arsenic, under which the patient has made rapid progress, both mentally and physically, and has gained greatly (about $1\frac{1}{2}$ stone) in weight. Unfortunately, cases of acute mania are difficult to draw correct conclusions from, as they tend at times to recover rather suddenly, even without medicinal treatment.

As has already been noted, one case which greatly resembled early general paralysis seemed to derive some benefit from large doses of potassium iodide, although syphilis was as far as possible excluded.

In one of the glycosuria cases the output of sugar was reduced to an infinitesimal quantity by aspirin, given in 10 gr. doses thrice daily, as recommended by Williamson."

THORACIC CANCER.

AT a recent meeting of the Société de Chirurgie, Paris, M. Quénu notified the death of M. Faure's patient, from whom the thoracic portion of the œsophagus had been excised for cancer. The inferior extremity of the tissue had become terribly septic. Until we find some means of safeguarding patients from this risk M. Quénu considers that the ablation of the thoracic œsophagus for cancer should be discontinued.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Medical Microscopy: Designed for Students in Laboratory Work and for Practitioners. By T. E. OERTEL, M.D.; Professor of Histology, Pathology, Bacteriology, and Clinical Microscopy, Medical Department, University of Georgia. With 131 Illustrations, some of which are Coloured. London: Rebman, Limited. 1903. Pp. 350 of text.

THE first paragraph of the author's preface reads as follows :—
"In this day of multiplicity of medical books none should venture to afflict the medical public with a volume which is not called for by some legitimate voice. *Believing this, I have still brought forth the following work.*" The italics are ours. We have thought the passage worth emphasising, as it exhibits a peculiar frame of mind on the part of the author. He appears to suspect that the "voice" which inspired him with the design of producing this book was not altogether "legitimate." We can unhesitatingly confirm his suspicion, though we should hardly have selected that way of putting it. We can assure him that he has ventured to do precisely that which he says ought not to be done. He has ventured to inflict upon the medical public an utterly superfluous work. There is only one consolation in reviewing it, and that is, that the affliction is not likely to be of long duration.

The first chapter of the book deals with the microscope, and essays an account of the optical principles underlying its use. The figures with which that account is accompanied contain several inaccuracies. Fig. 2 represents two rays of light entering prisms at an angle, and undergoing no refraction at the point of entrance. In fig. 8 the letters *a, b*, appear to indicate the actual object, whilst the text states that they indicate the virtual magnified image. No explanation of the construction of an objective is given, though there is a figure purporting to show the arrangement of the lenses.

On p. 26 we are told that the angle of aperture of the lenses in figs. 13 and 14 is *a, b, c*, whereas a glance at the figure shows that it is *b, a, c*. On p. 27 we are told that the unaided normal eye is capable of seeing 200 ruled lines within the space of one inch. Surely this is not so.

The text bristles with small inaccuracies hardly worth while reciting, but producing a distinct impression of slovenly workmanship. Thus in the list of microscope-makers we find "E. Leitz, of Wetzlar, Reichert, of Vienna, Germany," and so on.

The next chapter deals with the fixation of tissues. The author mentions absolute alcohol, "synthetic alcohol," "commercial alcohol," formalin, and Müller's fluid, but gives no indication as to what class of material each is best suited for. He then proceeds without further ado to describe infiltration methods, beginning with celloidin. In connection with this method he would allow the worker to use 95 per cent. alcohol instead of absolute (!). He appears to think that large sections can be cut by the paraffin method. This, of course, is the case; but still larger can be cut by the celloidin method, yet the author does not say so. He complicates the paraffin method by requiring two paraffin baths, each lasting 12 hours. His account of how the object should be imbedded could not be understood by anyone not already familiar with the details of the process—in other words, would be useless to those for whom it is intended. Dr. Oertel calls a fluid used for causing paraffin sections to adhere to the slide a "fixative." He does not seem to know that plain water will serve the purpose when properly used. But it is quite needless to give further details.

The book goes on to describe bacteriological methods, tumours, blood-films, urine, &c., &c., all on the same lines—scrappy, imperfect information, just stopping short of what is really needed.

The illustrations are mostly copied either from manufacturers' catalogues, or from such well-known works as von Ziegler's "Pathology," and Fraenkel and Pfeiffer's "Atlas of Bacteriology." Those of which the source is not given, and which are, therefore, in all probability original, are perfectly useless. They are mostly very bad microphotographs, quite

unrecognisable without the label. Good examples of this style of picture can be seen on pages 218 (melanotic sarcoma), and 226 (melanotic "carcinoma"). They are typical specimens of what illustrations ought *not* to be.

The book is nicely got out, but we cannot congratulate Messrs. Rebman in having selected it for presentation to the British reader.

Bacteria in Daily Life. By MRS. PERCY FRANKLAND.

London: Longmans, Green & Co. 1903. 8vo. Pp. 216.

THIS is not a new book, but a reprint in book-form of several articles contributed by the authoress to various popular periodicals. As may be anticipated from the above description, its contents are neither very new nor very profound, and, accordingly, require a comparatively brief review in this place. Their general scope may be gathered from their titles—"Bacteriology in the Victorian Era" [was there any previously?]; "What we Breathe;" "Sunshine and Life;" "Bacteriology and Water;" "Milk Dangers and Remedies;" "Bacteria and Ice;" and "Some Poisons and their Prevention."

Mrs. Frankland's style is somewhat diffuse, and her facts are diluted to suit the intellectual palate of a class of readers to whom, as she evidently considers, ordinarily concise exposition would be only so much *caviare*. The result is a product that will hardly attract the medical reader—of a surety not the younger men. It might have been well if Mrs. Frankland had availed herself of the opportunity offered by the reprinting of her essays to bring the subject-matter up to date. But she has not done so. Numerous citations might be given in support of this. Thus, for example, on pp. 29 and 30 we find in connection with the rôle of flies in the dissemination of typhoid no allusion to the additional facts collected during the late war by officers of the R. A. M. C., in support of the view that these insects do really convey the bacillus. Not a word is said about the rôle of the *tse-tse* fly in the propagation of that dread malady *Nagana*, nor does Mrs. Frankland appear to know that malaria is propagated by the mosquito. The inference would appear to be justified by the absence of all allusion to the fact in the course of four pages (27-31),

devoted to the part played by flies and other insects in the spread of disease-germs. The passage reads like the play, without the part, of Hamlet. Nor are the few facts vouchsafed by the authoress always correct. Thus, on p. 172 we find it stated that Dr. Kolb has isolated the rinderpest bacteria from the gall of infected animals, and, moreover, has found them on isolation to possess "their full complement of virulence." So far is this from being the case that no one has yet succeeded in seeing the rinderpest microbe, much less in isolating it. Its shape and other morphological characters are entirely unknown, and we can only suppose that it belongs, together with the organisms of rabies and foot and mouth disease, to the group or category of ultra-microscopic organisms. Mrs. Frankland would appear to have misunderstood the passage in Neufeld's paper in the *Zeitschrift für Hygiene*, where he says that Kolb was able to *separate* the *materies morbi* of this disease by centrifuging the bile.

It would serve no good purpose to adduce further examples of the faults to which we have referred. The best that can be said of the book is that it is calculated to induce a certain desultory class of readers to take a momentary interest in some of the great problems with which the graver type of mind is seriously occupied.

The Internal Secretions and the Principles of Medicine.

By CHARLES E. DE M. SAJOURS, M.D. Volume First. Philadelphia: F. A. Davis Company. 1903. Pp. 800.

STRUCK by the well-known fact that between the time the oxygen leaves the blood and that at which it reappears as carbonic acid we cannot trace this element, the author endeavours to gain more knowledge of tissue respiration, and in his studies arrives at certain conclusions which have the merit of boldness and originality, while as to their truthfulness we confess we have our doubts.

The marked affinity of adrenal extractives for oxygen furnished a clue which led him "to realise that the adrenals could be considered as the key, not only to tissue-respiration, but also to the function of all other organs now classed as ductless glands. And even these developments assumed

secondary positions when it became evident that the better known organs, such as the heart, lungs, liver, &c., were, so to say, subsidiary structures, the instruments, in a measure, of the smaller ductless glands, and destined to fulfil the mandates of the latter."

Traced to the pulmonary alveoli, the secretion of the adrenals was found to combine with the constituents of hæmoglobin, methæmoglobin (hæmatin), and hæmotoporphyrin (hæmatoidin), which, as well as the plasma, it endowed with their affinity for oxygen. The red corpuscles are "secondary factors" in the transport of oxygen, while "it is the oxygen-laden adrenal secretion dissolved in the plasma itself which carries on all the oxidation processes of the organism." The various blood ferments which have been described from time to time as the oxidation ferment, the glycolytic ferment, and so on, are held to be identical with the oxygen-laden adrenal secretion, for which the author suggests the name *adrenoxin*.

In explanation of the ease with which the oxygen dissolved in the plasma can penetrate the different tissues, comes the discovery that "various structures, the functions of which were unknown, were in reality blood channels, or rather plasma channels." The axis cylinders of nerves, the dendrites of nerve cells, the neuroglia fibres, and many other structures have this function. In the case of the heart, the adrenal secretion on which the contractions depend penetrates the tissue by the Thebesian veins, although the functional importance of the coronary arteries is not altogether denied.

It next became necessary to ascertain the identity of the agencies with which the oxygen of the plasma combined. This is myosinogen in the muscles, fibrinogen in the blood, myelin, or "its active constituent" lecithin, in the nervous system. "This myeline was not only found to surround the axis cylinders of all nerves, but also to line the inner surface of the dendrites of neurons, and to form the ground substance of their cell body. It thus became apparent that the entire nervous system was built upon the same plan—i.e., cylinders containing oxygen-laden plasma surrounded by a layer of myeline, and that the reaction between these two bodies served to form and liberate nervous energy."

Further investigation showed that the adrenals are directly connected with the anterior pituitary body through the solar plexus, the splanchnic nerves and the cervico-thoracic ganglion of the sympathetic. The anterior pituitary body "proved to be the most important organ of the body, as governing center of the adrenals, and, therefore, of all oxidation processes"; and increased or diminished metabolism was due to increased or diminished activity of the pituitary body.

The functional efficiency of the pituitary body was then found to be sustained by the secretion of the thyroid gland—"iodine in organic combination." Excessive production of this secretion over-stimulates the pituitary body and causes exophthalmic goitre, while diminution of secretion, by inhibiting the function of the pituitary, causes myxoedema. "The thyroid gland, the anterior pituitary, and the adrenals were thus found to be functionally united—i.e., to form an autonomous system, which we termed the adrenal system."

We next come on a very large generalisation. The action of thyro-iodine on the pituitary is the same as that of any poison introduced into the blood. They all act on the adrenal system, and not on the blood or cellular elements. "What are now considered as symptoms of infection or poisoning are all manifestations, more or less severe, of *over-activity or insufficiency of the adrenal system*. Indeed, *the physiological action of remedies was also traced to the anterior pituitary body, the governing center of this system*." This theory is held to explain nearly all diseases, among which cholera Asiatica, cholera infantum, arsenical poisoning, tuberculosis, and syphilis are shown to be merely due to adrenal insufficiency. The action of drugs, too, is simply explained on the author's views.

But we have not yet reached the end of this remarkable chain of concatenated organs. The posterior pituitary body is second in importance only to its neighbour the anterior pituitary. It is "the *chief functional center of the nervous system*, its numerous groups of neurons forming the starting point or highly specialized center, of a single class of nerves." It is "the anterior pituitary body's co-center in sustaining the cellular metabolism of all organs." It was further

ascertained "that the posterior pituitary was an important feature of the morbid process in influenza, hay-fever, hysteria, catalepsy, and other obscure affections."

The spleen and pancreas are closely connected in their functions. Not only has the author confirmed the views of Schiff and Herzen as to the action of the spleen in converting the pancreatic trypsinogen into trypsin, but he finds that this ferment is secreted in part into the blood, and there, together with adrenoxin and fibrinogen, destroys toxic albuminoids, including "all toxins and diastases secreted by bacteria, proteids, toxalbumins, vegetable poisons and venoms." Insufficiency of either of the three factors mentioned above compromises the issue of the disease. In typhoid fever fibrinogen is wanting, but in diphtheria trypsin. "The dominant active principle of antitoxin proved to be trypsin."

Many of our readers will be pleased to hear that this theory makes unnecessary the multiplicity of antitoxins, cytolytins, and haptophore groups which Ehrlich connected with his side chain theory. His amboceptor is the author's oxidising substance or adrenoxin, and his complement is the spleno-pancreatic internal secretion or trypsin.

Finally, we come to the white blood corpuscles, without whose intervention no pathological theory is, at the present day, complete. These bodies are endowed with functions greatly exceeding in importance any yet assigned to them, even hypothetically. They "supply the organism with the agencies that combine with the oxidising substance to ensure the continuation of life and the efficiency of all organic functions. The neutrophiles, Metchnikoff's wandering phagocytes, were traced from the solitary and agminated follicles to the cavity of the intestine, where they ingested proteids; then through the villi, mesenteric veins and portal veins, where they absorbed the spleno-pancreatic secretion—i.e., the trypsin which Metchnikoff found them to contain. These cells formed, we ascertained, *peptones*, *myosinogen*, and *fibrinogen*—all globulins—from the proteids ingested by them, and distributed these products to all tissues, the muscles, and the blood itself. Ehrlich's eosinophils, non-phagocytic leucocytes, asserted their identity as daughter cells, the separation from their parent cells, the neutrophils, occurring in the liver by

mitosis. They were traced to the pulmonary alveoli, where they participated in the formation of the nucleated epithelium. Their product proved to be *hæmoglobin*. The basophils were found to take up fats derived from food-stuffs which penetrated the lacteal and lymphatic ducts, to convert them into myeline granules and to distribute them throughout the entire nervous system."

Such are the main conclusions of the author, given as far as possible in the words of his own summary of the contents of this volume. It will be seen that they are pretty far-reaching, and if established they would revolutionise our views to a very considerable extent. For the present we think we may abstain from criticism, and leave the matter to the judgment of our readers.

The work is excellently brought out by the publishers. The text is illustrated by several well-executed plates, many of which are in colours.

Protozoa and Disease. By J. JACKSON CLARKE, M.B. Lond.
Part I. London: Baillière, Tindall & Cox. 1903.

THIS is a well brought-out and highly instructive book of 168 large octavo pages, printed on good paper, and provided with nearly a hundred illustrations, many of which are semi-diagrammatic sketches by the author, whilst some are reproductions of microphotographs by L. Pfeiffer and others. In view of the large amount of attention which the protozoa have attracted within the last few years, a clear and well-illustrated account of these organisms is undoubtedly a *desideratum*. The recent elucidation of the life-history of the malarial parasite by Ross, MacCallum, and Grassi has excited in many minds the desire of becoming acquainted with the systematic relationship of an organism which, despite its unicellular structure, exhibits such a marvellous fertility of resource and such developmental complexity. The increased mortality from cancer—whether real or apparent—has likewise conduced to rivet attention on the protozoal organisms, for it is universally conceded that, should cancer prove to have a micro-organismal ætiology, it is amongst the protozoa that its exciting cause will be found. Indeed, the author of

this book was, at one time, if we mistake not, one of the most ardent advocates of a parasitic causation, not merely of epithelial cancer, but also of sarcoma. In the present work he has, very wisely, we think, refrained from referring at any length to these observations, the true interpretation of which, despite all the persevering work of the past decade, still remains uncertain.

To Mr. Jackson Clarke belongs the indisputable credit of being the only one—so far, at least, as we are aware—amongst the advocates of the parasitic theory of cancer who has given to the world a convincing demonstration of his personal acquaintance with the class of organisms the rôle of which is in question. The book lying before us on the table is proof positive that he has assimilated the work of others, and has personally studied many of the principal types. One consequence of Mr. Jackson Clarke's familiarity with his subject is that his treatment of some of its more complex portions, whilst adequately clear to the reader whose biological training is up to a high standard, will scarcely be followed by even a medical reader of average acquirement in this department. Thus, his account of the development of the malarial parasite simply bristles with technical terms, most of which he leaves unexplained. The biological reader can infer their significance. Others will be puzzled. He fails to bring out the contrasts between the two cycles of development, and although he gives to the asexual one its correct name (schizogony), we cannot find that he gives the corresponding appellation of the sexual cycle (sporogony), though he mentions it later on. He gives, however, a fairly complete account of the morphology of all the protozoa, including the sarcodina, sporozoa, gregarines, coccidia, neosporodia, serumsporidia, flagellata, and ciliata. He takes the sporozoa in the wrong place, allowing the gregarinida to slip in between the malarial parasites and the remainder of the hæmosporidia. We would further point out that a bibliographical appendix would have been of much value, as most of the references are very incomplete in form, and hardly admit of verification. The author does not give credit to some of the writers from whom he has largely drawn inspiration—Lühe, for example. Nor could we find an explicit reference to Doflein. Mr. Clarke's grammar is

not always above reproach, as witness the following sentence with which he begins Chapter III. :—" This class of the protozoa are all parasitica." We also came across typographical errors that ought not to have escaped correction—e.g., *amitotis* (p. 15); millimetres on p. 24 (should be micro-millimetres or micra); *zoosporida* (same page); Cienowskyi on p. 30 (should be Cienkowski); chromation, instead of chromatin (p. 78). Yet we think that, despite these blemishes, Mr. Clarke's work is one deserving of much praise. It brings together in a small compass information not readily accessible, and this information is for the most part accurate, up-to-date, and rendered easy of assimilation by well-selected pictures of the organisms described. In a word, we can, and do, warmly recommend the book.

Physical Chemistry for Physicians and Biologists. By DR. E. COHEN. Translated by MARTIN H. FISCHER, M.D. New York: H. Holt & Co. 1903.

IN a prefatory note by Professor Loeb it is stated, and with perfect truth, that the influence of physical chemistry upon the development of physiology and biology is so considerable that those who wish to follow the progress of the latter sciences must needs familiarise themselves with the principles of physical chemistry.

Professor Cohen has set himself the task of giving a *résumé* of these newer conceptions in their applications to medical and biological problems, and we cordially welcome his efforts, seconded by Dr. Fischer's excellent translation.

Let no one imagine that the book is very easy reading; and we observe with regret that although there is a tolerably full index, yet there is no table of contents, or even list of headings of the seventeen lectures which make up the volume.

The work is not a systematic text-book, and we can best indicate its scope by pointing out the principal topics which are discussed.

Lectures I. and IV. treat of the velocity of chemical reactions, and to thoroughly follow them an elementary knowledge of the calculus is assumed.

Lecture II. deals with the inversion of cane sugar, and enters

into the difficult question of catalytic action, a matter which concerns many physiological problems, and leads naturally on to a consideration of the mode of action of ferments. Here attention is directed to the important and interesting recent researches of Bredig and Müller von Berneck upon the action of inorganic ferments—*e.g.*, finely divided platinum.

Three lectures are devoted to a discussion of the fundamental phenomena of chemical equilibrium; subsequent lectures treat of the friction of liquids, osmotic pressure, determination of molecular weight of substances in solution, electrolytic dissociation, and, lastly, electromotive force.

Lectures XIII. to XV. point out some of the applications of physico-chemical principles and methods to various fields of practical research—*e.g.*, hygiene, pharmacology, and physiology. This portion of the volume will, we fancy, appeal most strongly to well-educated physicians and to professors of *Materia Medica* and Therapeutics.

To those who can read German, and desire to pursue the subject, we can cordially recommend a small treatise by Dr. Köppe, "*Physikalische Chemie in der Medicin.*" which covers part of the ground occupied by Dr. Cohen's book, and is largely taken up with a lucid account of osmotic processes in relation to vital phenomena.

A Short Manual of Inorganic Chemistry. By A. DUPRÉ, Ph.D., F.R.S.; and H. WILSON HAKE, Ph.D. Third Edition. London: C. Griffin & Co. 1903.

THIS book, which has achieved the well-merited success of a third edition, is a clearly written account of modern inorganic chemistry. It is, in parts, closely condensed and requires careful reading, and is quite up to date.

The introduction, which covers 100 pages, deals chiefly with such topics as elementary molecular mechanics, atoms and molecules, thermo-chemistry, chemical affinity, and the periodic law. It is plainly impossible within these limits to give more than a meagre account of some of these subjects.

Useful features are "a review and general survey" of the eight commoner elements—*viz.*, O, H, N, C, B, Si, S, P—after their properties and compounds have been described;

and, also, a brief account of the general relations of each of the periodic groups, which precedes their description.

Another, although minor, point of interest crops up here and there in the etymological and historical notes.

Thus we learn, on Skeat's authority, that the word "water" is related to the Aryan root "wad," to well or gush out. And, again, we are glad to know that black oxide of manganese was long ago styled *magnesia nigra*, to distinguish it from *magnesia alba*, which contained what we now term magnesia (MgO). When, later on, it was shown that *magnesia nigra* contained a new metal, this was called *magnesium* by some, and *manganesium* (to avoid confusion) by others—the latter term being finally adopted, while *magnesium* was retained for the metal of *magnesia alba*.

At page 301 we are told that the "mantles" of incandescent gas burners consist mainly of thorium dioxide (ThO_2), together with a small proportion of the oxides of cerium and allied rare metals.

For many years it was firmly believed that if anything was well known it was the composition of the atmosphere. Yet all the time nearly one per cent. of an unknown gas lurked in it until the secret was revealed by Lord Rayleigh and Professor Ramsay in 1894, and the gas was named *argon*, from its inertness. Argon has not as yet been induced to form compounds, but it has been extracted by heat from the mineral *malacene*, and has been found in one sample of meteoric iron.

It is worth while to reproduce a table of the average composition of the atmosphere by volume, which includes the latest discoveries:—

					Per cent.
					By volume
Oxygen	..	..	..	..	20.61
Nitrogen	..	..	..	..	77.01
Argon	..	..	..	..	0.94
Carbon dioxide	..	..	..	..	0.04
Aqueous vapour	..	..	..	..	1.40
Nitric acid and ammonia			..	..	traces
Helium, neon, krypton, and xenon				..	traces

Neon constitutes probably less than one part in 50,000; the other rare gases in even much smaller proportions.

The volume under notice can be thoroughly recommended as a compact and reliable compendium of inorganic chemistry, and deserves to attain a wide circulation.

Transactions of the American Surgical Association. Volume XX. Edited by RICHARD H. HARTE, M.D.; Recorder of the Association. Printed for the Association for sale by William J. Dornan, Philadelphia. 1902. Pp. 571.

THE volume before us contains a variety of interesting papers on different subjects.

Abdominal surgery, as we might expect, occupies a large portion of the volume.

The surgery of hypertrophied prostate, which has been engrossing the attention of surgeons for the past couple of years, has a paper devoted to it by Dr. James E. Moore, of Minneapolis, in which he advocates the perineal route in prostatic surgery for both anatomical and technical reasons.

Two interesting papers by Herbert L. Burrell, M.D., of Boston, and Joseph D. Bryant, M.D., of New York City, on "The Teaching of Surgery," will be found worthy of perusal.

A very large number of the papers read at the Annual Meeting of the American Surgical Association last June, and published in this volume, have already appeared in the "Annals of Surgery" from month to month; consequently detailed reference to them now is unnecessary.

The volume is one deserving of perusal. An appendix contains an alphabetically arranged index of Volumes I. to XX.

Cancer: its Causation and its Curability without Operation.

By ROBERT BELL, M.D. Glasg., F.F.P.S., &c.; Consulting Physician to the Glasgow Hospital for Women. London: Baillière, Tindall & Cox. 1903. Pp. 271.

THE title of this little volume is an attractive one, but on reading through it the attraction vanished. The author tells us in the preface that if "cancer is ever to occupy a place upon the list of curable diseases the public must of necessity be taken into our confidence, and be educated up to the point where they will be enabled to recognise not only the disease

in its initial stage, but the conditions of life which tend to lead up to its development." If we only knew for a certainty what the conditions of life were which led to its development, then, of course, an honest endeavour might be made to prevent its occurrence. We cannot, however, accept the statement of Dr. Bell that gout and rheumatism are the essential factors underlying the development of cancer. His book certainly appears to us to be written more with the object of catching the eye of the public, and advertising himself and his views, than from the idea of making known to the profession any scientific or interesting discovery. If the author expected to obtain notoriety as a scientist or reputation for his literary accomplishments, then, we think, the only word to express the result we anticipate for his efforts is "failure."

Hand-book of Physiology. By W. D. HALLIBURTON, M.D., F.R.S.; Professor of Physiology, King's College, London. Fifth Edition (being the Eighteenth Edition of Kirke's Physiology), with upwards of seven hundred illustrations, including some coloured plates. London: John Murray, Albemarle-street. 1903. 8vo. Pp. xxiv. + 312.

So recently as January, 1902, we noticed the fourth edition of Dr. Halliburton's excellent *Hand-book of Physiology*. We had some criticisms to offer upon that occasion in relation to the arrangement of the subject-matter.

These criticisms have not been effective, but then the author frankly admits in his preface that the rapid exhaustion of the last issue of the work necessitated a somewhat hurried preparation of a new edition; and, therefore, as the old type was still standing, the alterations made in the main text are only of a minor kind. The work has, however, been brought fully up-to-date in a full and important Appendix of some twenty-two pages of small type. We are sorry that so valuable an addition should have been printed in long primer instead of small pica, like the greater part of the volume. This is a serious disadvantage to many readers, and may lead students to under-estimate the importance of the topics which are discussed.

A mere enumeration of the contents of the Appendix will

show that Dr. Halliburton has not overlooked the discoveries made by physiologists within the last year or two, especially in connection with digestion and the nervous system. Pawlow's observations on the reflex salivary secretion and on the secretion of the pancreas are briefly described. The so-called peripheral reflex secretion of the pancreas is called in question in view of the investigations carried out by Starling and Bayliss, and their discovery of the excitant, which they have provisionally termed *secretin*.

Pawlow's investigations on the "succus entericus" are next detailed, as well as those conducted by Starling, Hamburger, and Otto Cohnheim. Mett's tubes for estimating the proteolytic activity of a digestive juice are mentioned, and the method of using them is described.

There are also sections or paragraphs on Schütz' law (first stated in 1885) that the amount of peptic activity is proportional to the square root to the amount of pepsin; on the *swaying* or *pendulum* movement of the intestines, described by Starling; on Nussbaum's experiments on the kidney; on osmotic phenomena; on Waller's method of testing excitability; on fatigue in nerves, cerebral localisation, function and myelination, investigated by Flechsig's embryological method; on association fibres and association centres; and on Flechsig's recent results on myelogenesis.

It will thus be seen that the author has kept his work well abreast of physiological research and discovery. Therefore it is that we are in no doubt as to the successful future which awaits this fifth edition of so admirable a Hand-book of Physiology.

Catechism Series. Physiology. Parts I. and II. Second Edition. Edinburgh: E. & S. Livingstone.

It is not necessary to do more than note the appearance of the second edition of these parts of "The Catechism Series," published by Messrs. E. & S. Livingstone, which have become so popular among medical students. Paper, type, and general style are all worthy of the eminent Edinburgh publishing firm, which has been so enterprising as to bring out "The Catechism Series."

PART III.

SPECIAL REPORTS.

REPORT ON PRACTICE OF MEDICINE.

By H. T. BEWLEY, M.D., F.R.C.P.I., Physician to the Adelaide Hospital, Dublin.

- I. CREOSOTE IN PNEUMONIA.
- II. POTATOES IN THE DIETARY OF DIABETIC PATIENTS.
- III. THE TREATMENT OF ASTHMA IN CHILDHOOD.
- IV. ACETOZONE IN TYPHOID FEVER.
- V. EXPERIMENTS IN LOCAL TREATMENT.
- VI. OLIVE OIL IN GASTRIC ULCER.
- VII. ON APOMORPHINE.
- VIII. GLYCOSURIA WITHOUT AN EXCESSIVE AMOUNT OF SUGAR IN THE BLOOD.
- IX. ORTHOFORM IN THE DIAGNOSIS OF GASTRIC ULCER.
- X. THE BACTERIOLOGY OF EMPYEMA IN CHILDREN.

I. THE TREATMENT OF PNEUMONIA.

DR. WILCOX (New York) has found creosote carbonate of great use in combating the toxæmia of pneumonia. Cassotte and Corgier, he writes, reported that after continuous administration of fairly large doses of creosote carbonate in most cases a typical fall of temperature occurred during the first twenty-four hours of treatment, and if the treatment was continued the temperature did not again rise. Relapses and sequelæ were absent. The daily dose was two to four drachms, given in divided portions every six hours. As soon as the temperature becomes normal the amount is reduced to one-half, and this is continued as long as auscultatory signs persist.

Wilcox and other clinical observers have used this treatment in a large number of cases; their conclusion is that creosote carbonate cuts short a large percentage of cases, mitigates other cases, and in a small percentage produces no result. Wilcox records 33 cases treated without a death.

In addition to the employment of creosote carbonate, Dr. Wilcox recommends that particular attention be paid to the emunctories, so that all avenues by which toxins can be eliminated may be open. In patients suffering from chronic Bright's disease of the interstitial variety, he advises intestinal irrigations of a gallon of decinormal saline infusion, at a temperature of 108°, practised twice daily through a rectal tube, and finds it a most valuable method of provoking diuresis, stimulating the heart, and to a less extent producing diaphoresis. Intestinal antiseptics—one-sixth of a grain of calomel every hour for six doses with saline laxatives enough to empty the bowels completely and keep them open afterwards, and 3 to 6 grains of zinc sulphocarbolate every 2 to 4 hours until the stools are odourless, and then just enough to keep them so—has been of frequent use.—*Amer. Jour. of Med. Sci.*, Sept., 1902.

Van Zandt has sent circulars to medical journals and individuals concerning the effect of creosote in pneumonia. He has received replies from seventy-five sources representing 1,130 cases. Of these, fifty-six ended fatally—a mortality of less than five per cent. About half of those replying were of opinion that creosote can abort pneumonia, while the reporters were almost unanimous in claiming that the disease was mitigated by the use of the drug. Van Zandt claims that these replies support his opinion that a large percentage of pneumonic cases are cut short or aborted, almost all the rest are mitigated, and the remainder, a very small percentage, are not at all affected by the remedy.—*Med. Rec.*, N. Y., October 18, 1902, and *Ed. Med. Jour.*, April, 1903.

II. THE TREATMENT OF DIABETES MELLITUS AND ITS COMPLICATIONS BY THE USE OF A DIET CONTAINING POTATOES.

Mossé (*Revue de Médecine*, 1902, pp. 107, 278, 371, and 621) in a series of articles deals with his experiences in the use of potatoes in the treatment of diabetes mellitus. He starts out with the statement that the object sought for in the treatment of diabetes mellitus is the prevention or reduction of the hyperglycæmia. This may be brought about either by stimulating organic combustion, and thus hastening the destruction of the grape sugar, or by suppressing from

the diet or reducing to a strict minimum the sugars and carbohydrates convertible into glucose.

Mossé says that potatoes are generally held to be *injurious* in diabetes, and are usually placed in the list of forbidden articles. He believes, on the contrary, that they are not only *permissible*, but even *useful*. Potatoes may, with advantage to the patient, be given in substitution for wheat bread in the proportion of 2.5 to 3 of the former (weighed raw) to one of the latter. In his dietetic experiments he allowed his diabetic patients to have the enormous amount of 1 to 1.5 kilogrammes of potatoes (weighed raw) daily. In some instances the amount was increased up to 3 kilogrammes, or about six pounds. Wheat bread contains from 47 to 55 per cent. of starch, whereas fresh potatoes contain from 16 to 24 per cent., or an average of 20. The potatoes may be given in various ways, but in all his cases Mossé had them baked. In his experiments usually from 1 to 1.5 kilos of potatoes were substituted for about 350 to 500 grammes of bread. After the potatoes were substituted there was always a definite drop in the curves representing the urine and sugar excretion. In none of his cases did the sugar entirely disappear. Mossé states [that there was also a marked amelioration in the patient's symptoms. The thirst became less, neuralgias disappeared, and the strength increased. He found that after potatoes had been substituted for bread for several days, and then the patient placed on the original amount of bread, the excretion of sugar never reached the limit attained previous to the potato régime. The writer consequently holds that a potato diet has a similar beneficial effect to the "hunger-day" of Naunyn.

Good results have followed the use of the potato régime in not only the mild, but also the severe forms of diabetes. Mossé claims that traumatic wounds and those following surgical operations heal much more rapidly on a potato diet, and cites cases attempting to demonstrate this view.

Mossé advances two hypotheses to explain the beneficial effect of the potato diet. The first is that the potato produces a sugar more easily warehoused than that produced from bread; and second, that it introduces a substance into the organism which favours the glycolytic function of the

body. The diminution in the thirst is attributed to the greater amount of water contained in the potatoes. The increased glycolysis is believed by the writer to be due to the much greater quantity of potash introduced into the system as a result of the potato diet.

From the series of charts published it seems quite certain that potatoes are better tolerated by diabetics than wheat bread.—*Amer. Jour. of Med. Sci.*, May, 1903.

III. THE TREATMENT OF ASTHMA IN CHILDHOOD.

In a paper on this subject Dr. Stanley (Birmingham) calls attention to the value of *grindelia robusta*. He writes:—The treatment of asthma in children cannot be considered satisfactory, though occasionally some very good results may be obtained, and every case must be considered as a law unto itself. That *grindelia robusta* may give great relief I am convinced, but it may fail completely. In any case it should be given a trial if other methods do not relieve the attacks. There seems little indication as to what case is most likely to benefit by *grindelia*; those in which I have had the best results have shown considerable emphysema. It is administered in doses of 15 to 20 minims every quarter of an hour for four or five doses. Comby, who has had extensive experience in the treatment of spasmodic asthma in children, recommends a mixture containing tinctures of belladonna, drosera, lobelia, *grindelia*, and aconite. Drosera is a little-known drug in this country, and I have not tried it. Iodide in large doses is recommended, but I do not think children can stand it well. Probably much of the treatment of asthma in children depends on how far their surroundings and constitutional tendencies can be controlled. A thorough hygiene is of the utmost importance, and the antecedents must be carefully investigated. If we under-estimate the importance of this general principle, the management of these cases will be unsatisfactory. The patient may completely recover under careful and thorough treatment; therefore it is well worth while to attend to every detail. Change of climate for a time may be necessary, and every precaution taken to prevent catarrhal attacks in those who have shown evidence of spasmodic asthma; country or sea air should always be

tried. Gouty family histories must be always borne in mind in dieting these cases. In fact, the digestive system should in many cases receive first attention; the last meal of the day must be of the lightest possible nature.—*Birmingham Med. Review*, Feb., 1903.

IV. THE TREATMENT OF TYPHOID FEVER BY ACETOZONE.

Dr. F. G. Harris has tried this remedy in 128 instances of typhoid fever in the Cook County Hospital, taking advantage of a recent epidemic of typhoid, during which at least 600 patients with typhoid fever were admitted to the wards between July 1 and November 1, 1902. The cases were not selected ones, and special wards were set apart for giving the acetozone treatment. As is well known, acetozone was first prepared by Novy, and its action is similar to that of hydrogen dioxide, save that it gives off more active oxygen than the former compound; but while giving off more active oxygen, it does not do so with the same violence and rapidity as is observed with hydrogen dioxide. This drug was administered in solution which contained 12 to 15 grains of the powdered acetozone to a quart of hot water. This is placed in a bottle which is stoppered and vigorously shaken from three to five minutes. It is then set aside to cool, and is kept in the form of one-half-gallon bottles in a refrigerator. The solution is used to replace water and all other liquids except milk, which is practically the entire food used during the persistence of the fever. The patients are urged to drink it *ad libitum*. Moreover, 6 ounce-doses of this solution are given every four to six hours during the course of the fever. Apart from small doses of sodium phosphate or potassium sulphate to move the bowels, this was the only medication. Temperatures above 102° F. were treated by sponging with cold water. In conclusion, the author stated that many patients were given acetozone very irregularly on account of several contributory causes: Dislike of the taste and odour of the solution; resistance of ignorant patients; lack of assistance on the part of overworked attendants, due to the crowded wards caused by the epidemic. Those patients who are given the drug early, often, and regularly show the best results of this treatment. What Virchow calls the

"brutal force of figures" cannot but convince anyone that acetozone lowers the temperature, shortens the duration of the fever, and lessens its toxic symptoms more than our better known treatments. From the information gained in watching this series of 128 instances of typhoid fever, he believes that where patients can be seen during the first week of the illness and given large amounts of acetozone solution regularly and often, assisted by a gentle laxative, the temperature will return to the normal in from ten to twelve days.—*Therapeutic Gazette*, 1903, No. 3, p. 145, and *Amer. Jour. of Med. Sci.*, June, 1903.

V. EXPERIMENTS IN LOCAL TREATMENT.

Bouchard made an interesting communication at the recent Medical Congress in Cairo, on the effect of administering drugs locally in cases where a general infection tends to become localised. In a case of acute rheumatism, a man of sixty kilos, receiving 6 grms. of sodium salicylate daily, is taking 10 cgrms. for each kilo of tissue, whether it be sound or diseased. But the soft part of the joint, which is the real seat of the disease, will only weigh 50 to 100 grms., so that the amount which actually cures the local affection is some 5 to 10 mgrms. But to obtain this it has been necessary to absorb 599 times the amount required. As a matter of fact, acute rheumatic arthritis yields to extremely minute amounts of sodium salicylate if it be injected locally. Bouchard has seen the arthritis cut short by the injection of 3 cgrms., and it is exceptional if a rheumatic arthritis is not cured by the local injection of 10 to 20 cgrms. dissolved in 2 to 4 c.c. of water. The effect is not due to simple revulsion, as in that concentration the solution is not irritating; nor is it due to abstraction of fluid, since the effect is obtained even if the salicylate solution be isotonic and have the same osmotic tension as the blood. In a series of cases of acute rheumatic polyarthritis, Bouchard has seen 5 to 10 cgrms. of sodium salicylate cause disappearance of the swelling, redness, and pain in the joint treated, while the other joints involved were not benefited, and other joints or serous membranes may be subsequently attacked. Thus, one can at will cure any one joint. The effect is purely local, and is not due to absorption

into the blood or to nervous influence. The local treatment is uncertain, as it does not prevent the further spread of the disease to other joints or serous membranes. Consequently, during the acute stage of rheumatism, or if it be of a wandering type, general treatment is obligatory. If it fails, then local injection may be used. When the rheumatism is past the progressive stage, and no longer exists as a general infection, but merely leaves local manifestations, the local joint treatment may of itself prove sufficient. Similarly, the injection of minimal doses of sodium salicylate into the painful chest wall has cut short the development of pleurisy, and pericarditis has thus been cured. The injection should be made in immediate proximity to the affected structures, but not into the joints or serous cavities themselves, but in the surrounding tissue, or even into diseased tissue itself. For the local treatment of syphilitic manifestations, Bouchard has used the following formula with great success :—Biniodide of mercury, 0.01 grm.; potass. iod., 3 grms.; water, 100 c.c. Of this, 2 c.c. are injected locally. It is also very effectual in relieving the pains of locomotor ataxia.—*Rev. moderne*, Paris, January, 1903, and *Ed. Med. Jour.*, May, 1903.

VI. OLIVE OIL IN GASTRIC ULCER.

Walko (K.). *Centralblatt für inn. Med.*, 1902. Vol. XXIII., p. 1,113. Olive oil meets admirably the various therapeutic indications in gastric ulcer; it is non-irritant, it possesses high nutritive value, it is well absorbed, it exerts no deleterious influence on the motility of the stomach, it does not encourage bacterial decomposition in cases with stasis. As a fat it possesses the power of diminishing the hydrochloric acid secretion. It tends to regulate the action of the bowels, it may form a protective covering to the ulcer, and, lastly, it is anti-spasmodic. On these grounds the writer has employed olive oil in the treatment of gastric ulcer, and with success. In acute cases the oil is given at first in teaspoonful doses, and gradually increased until about two ounces are taken three times a day. Along with rectal feeding, the patient is kept on oil until the acute symptoms have subsided (3-6 days). Where the oil is distasteful an aromatic mouth-wash may be used after each dose, or in obstinate cases the

oil is given as an emulsion through a soft tube. The average period over which oil is used is about 14 days, other dietetic ingredients being gradually added until at the end of the first week the patient is taking Leube's No. 1 diet.—*Med. Chronicle*, June, 1903.

VII. ON APOMORPHIN.

Professor S. Rabow publishes a paper in v. Leyden-Festschrift. Bd. II. P. 79. He states that under the influence of microbic activity a little of it is sometimes formed in old solutions of morphin; hence may result some of the cases of vomiting that occur after hypodermic injections of morphin. For medical purposes apomorphin hydrochloride is exclusively used. When this salt is kept in solution after a while the solution may become clear green in colour; this change has no effect on the activity of the drug, and is probably brought about in the following way:—The glass of the bottle in which the solution stands gives up some alkali to the solution, which by uniting with some HCl causes some basic apomorphin to be set free: in presence of air this is oxidised into substances having a green colour. The green coloration may be prevented by adding a little HCl to the solution.

After discussing its well-known uses as an emetic and expectorant, Rabow calls attention to its action as a hypnotic. Given hypodermically in doses of grain $\frac{1}{30}$ – $\frac{1}{20}$ it acts promptly in producing sleep. In cases of excitement in which the patient was inclined to throw himself about, and to be violent, and had suicidal impulses, he found it an excellent means of producing rest and sleep; the sleep produced is deep, and lasts a long time. It is to be avoided in the case of weakly and emaciated invalids, of children, and of aged persons. Vomiting sometimes occurred, but after it the patients slept quietly.—*Deutsche med. Zeitung*, Aug. 18, 1902.

VIII. GLYCOSURIA WITHOUT AN EXCESSIVE AMOUNT OF SUGAR IN THE BLOOD.

Dr. R. Lépine contributes to the *Lyon Médical*, 47, 1902, a paper on the above subject. He objects to the expression "Renal Diabetes," and prefers to express his views by stating that there may be a "renal element" in diabetes. The view

of Claud Bernard that sugar only appears in the urine when its percentage in the blood exceeds 0.03 per cent. was, in 1895, disproved by Lépine's experiment. He ligatured the ureters of a dog, and then injected sugar into a vein in the proportion of 3 grams to each kilogram of the animal's weight ; at first the amount of sugar in the blood exceeds the normal, but after 6 or 7 hours it falls below the normal ; nevertheless the urine still contains sugar. Another experimental method will produce the same result ; a puncture with a needle into the cervical cord in the neighbourhood of the calamus scriptorius produces hypoglykæmia, which in one case was accompanied by glycosuria.

Lépine believes that transitory attacks of glycosuria are of nervous origin ; and does not believe that in these cases there is any hyperglykæmia. He mentions the case of alternating albuminuria and glycosuria in a hysterical woman, in whom there was clearly neither Bright's disease nor true diabetes—probably the condition was due to a functional alteration in the renal activity.—*Deutsche med. Zeitung*, May 18, 1903.

IX. ORTHOFORM IN THE DIAGNOSIS OF GASTRIC ULCER.

Dr. Murdoch (*New York Med. Journ.*, November 29, 1902) refers to the great value of the drug in this connection. It is practically non-toxic, sixty grains in a day producing no toxic symptoms, and its influence is decided and prolonged, lasting, on account of its slow solution and consequent non-absorption, for many hours as a local anæsthetic. It will not, however, anæsthetise nerve endings when they are protected by skin or mucous membrane ; if therefore its administration in a suspected case of ulcer results in the relief of the severe pain in the stomach, it can only do so by coming into contact with a surface from which the mucous membrane has been removed, and therefore suggests the presence of ulceration.—*Quarterly Med. Jour.*, May, 1903.

X. THE BACTERIOLOGY OF EMPYEMA IN CHILDREN.

W. J. S. Bythell (*The Medical Chronicle*, Nov., 1902, p. 81) presents a study of forty consecutive cases of empyema, the object of which was to determine not only the species

of bacteria present, together with their source and path of infection, but also the part played by the bacteriology in influencing the clinical course and termination of the disease.

While common in children of all ages (ten months to eleven years), fully twice as many boys as girls were affected. The pleura is infected in the great majority of cases by a process of direct invasion from a pulmonary lesion, which in children is usually a catarrhal pneumonia. In many cases which are apparently primary the source of infection is probably also an undiscovered patch of broncho-pneumonia. The micro-organism by far most frequently present is the pneumococcus, which occurred in pure culture in 26 out of 40 cases. The streptococcus alone occurred in two cases, while one or other of these organisms was present in every case except one, in which was found Friedländer's bacillus and the *Staphylococcus albus*.

The clinical results of empyema depend to some extent upon the species of bacteria found within the pleura, the pneumococcic cases being, on the whole, the mildest. This micro-organism may, however, give rise to very serious complications, either by direct invasion of surrounding viscera or by metastatic infection.

The bacteriological examination of the pus gives other indications as to the clinical prognosis which appear to be of considerable value: (a) A small number of poorly-stained micro-organisms which give feeble cultures usually denotes a good prognosis; (b) the reverse condition is not so frequently accompanied by severe clinical symptoms, especially when phagocytosis is well marked; (c) vigorous cultures are not in themselves a reliable sign of pathogenic activity.

The bronchial glands are probably invaded by micro-organisms from the pleural cavity in every case. The organisms are sometimes also found after death in the mesenteric glands.

With the exception of those cases in which there are tuberculous lesions of the pleura or lung, the best results may be expected from the resection of a rib with free drainage. In cases in which a tuberculous origin is suspected, removal of the fluid by paracentesis is to be preferred, and especially when the lungs are the seat of tuberculosis. Free drainage in these cases

probably offers no better chance of cure than repeated aspiration, and the complete evacuation of the fluid by free drainage appears to accelerate the pulmonary lesion by removing the pressure upon the lung, while the prolonged use of a drainage tube greatly increases the danger of contamination from within.—*Amer. Jour. of Med. Sci.*, April, 1903.

CORK MEDICAL AND SURGICAL SOCIETY.

THE Annual General Meeting was held on Wednesday evening, May 27, 1903, P. T. O'Sullivan, M.D., President, in the chair. Dr. P. J. O'Brien, Hon. Treasurer, read the statement of accounts, which showed that the credit balance of £42 with which the session had opened had now increased to £68. The statement and balance sheet were adopted on the motion of Dr. T. G. Atkins, seconded by Dr. J. Cotter, both of whom congratulated the members on the flourishing condition of the Society. The following officers were elected for the coming session:—President—J. Cotter, M.D., F.R.C.S.I.; Vice-President—N. Henry Hobart, B.A., M.B., M.R.C.S. Eng.; Hon. Sec.—D. J. O'Connor, M.A., M.D., L.R.C.P.I.; Hon. Treasurer—P. J. O'Brien, M.B.; Council—P. T. O'Sullivan, M.D. (Retiring President); C. Y. Pearson, M.D., F.R.C.S. Eng.; W. Ashley Cummins, M.D.; T. G. Atkins, B.A., M.D.; H. R. Townsend, B.A., M.D.; Edmond Murphy, L.R.C.P. & S.I.; Philip G. Lee, L.R.C.P. & S.I.; and Lucy Smith, M.D. Dr. N. J. Hobart, who has retired from active practice after a professional career of fifty-seven years, was unanimously elected an honorary life member of the Society.

UNIVERSITY OF DUBLIN.

THE Senate met in the Theatre of Trinity College, Dublin, on Tuesday, June 9th, 1903, for the purpose of considering names proposed by the Board for Honorary Degrees, and also for the discussion of the following Resolution:—"That it is desirable that Degrees in the University of Trinity College, Dublin, shall be opened to women, and that His Majesty's Government be requested to obtain a King's Letter empowering the University to grant Degrees to Women on such terms and conditions as may seem to the Board and Council, within their respective provinces, on full consideration, to be most expedient." After a long discussion the resolution was adopted by 74 to 11 votes.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

*THE HOUSING OF THE PEOPLE OF IRELAND DURING THE PERIOD 1841-1901.**

By ROBERT E. MATHESON, Esq., LL.D., Barrister-at-Law ; Registrar-General for Ireland.

I PURPOSE presenting to the Society a short review of the results of the inquiries made at each successive decennial Census from 1841, into the class of houses in Ireland, and the accommodation afforded by them, with some observations regarding the results of the special investigation into the number of tenements of less than five rooms made in connection with the Census of 1901.

CLASSIFICATION OF HOUSES.

An inquiry into the number of houses in Ireland was instituted both in 1821 and 1831, in connection with the Census, but no attempt was made to ascertain the class of houses returned, or the accommodation afforded. The Commissioners of 1841 perceived the necessity for some effort in this direction, and framed a scheme of House Classification which has since been adopted at each successive Census.^b The plan of classification may be thus described :—

The value or condition of a house, as to its quality, may be considered to depend mainly on :—

- 1st. Its extent, as shown by the number of rooms ;
- 2nd. Its quality, as shown by the number of its windows ; and
- 3rd. Its solidity or durability, as shown by the material of its walls and roof.

If numbers be adopted to express the position of every house in

* Read before the Statistical and Social Inquiry Society of Ireland, June 5, 1903, the President, Mr. Wm. F. Bailey, in the chair.

^b As in the Census Tables for 1871, the classification adopted on previous occasions was departed from to a certain extent, the figures for that year have been omitted from this paper, they not being fairly comparable with those for preceding and subsequent Censuses.

a scale of each of these elements, and if the numbers thus obtained for every house be added together, a new series of numbers will be produced, giving the position of each house in a scale compounded of all the elements—i.e., their actual state.

Four classes have been adopted, and the result is, that in the lowest of the four classes are comprised houses built of mud or perishable material, having only one room and window; in the third a better description of house, varying from one to four rooms and windows; in the second what might be considered a good farm house, having from five to nine rooms and windows; and in the first class all houses of a better description than the preceding.

Houses—Whole of Ireland.—During the 60 years from 1841 to 1901, there was a gradual reduction in the total number of houses—a result to have been anticipated from the reduction of the population—the number of houses having fallen from 1,328,839 in 1841 to 858,158 in 1901.

There was also a great alteration in the relative number of the houses of each class. Thus, in 1841 the fourth class, or mud cabins, which in that year numbered 491,278, formed 36.97 per cent. of the total number of houses. In 1851 the number fell to 135,589, and the percentage to 12.96, and since then there has been a gradual decline until, in 1901, we find that of inhabited houses in Ireland there were only 9,873, or 1.15 per cent., belonging to the fourth class.

In considering this decline it must be borne in mind that in this period Ireland passed through one of the saddest epochs in her history—the years of the terrible Famine, occasioned by the failure of the potato crop, accompanied and succeeded by the fever and pestilence which proved so fatal to the poor inhabitants of these cabins. Everywhere throughout the West and South of Ireland vast numbers of these wretched little habitations were left desolate, the inmates having either perished from the famine or the fever, or sought refuge from their misery in emigration.

Of houses of the third class there were, in 1841, 533,297, being 40.13 per cent. of the total number of inhabited houses in that year. In 1851 the number rose to 541,712, or 51.78 per cent. of the total. In 1861 the number of houses of this class fell to 489,668, and the percentage to 49.20, since which date each *Census* shows a further decline. At the date of the last enumeration, the number of houses of this class was 251,606, being 29.32 per cent. of the total number of inhabited houses in the country..

Notwithstanding the great decline in the population, the number of the second class houses gradually increased from 264,184, or 19.88 per cent. of the total number of inhabited houses in 1841, to 521,454, or 60.76 per cent., in 1901.

The first class houses, which in 1841 numbered only 40,080, or 3.02 per cent., had risen in 1901 to 75,225, or 8.77 per cent. of the total number of inhabited houses.

HOUSES IN CIVIC DISTRICTS AND RURAL DISTRICTS.

It has been customary in each Census to show the houses by Civic and Rural Districts, the former consisting of towns with 2,000 or more inhabitants, and the Rural Districts comprising all other parts of the country.

Civic Districts.—The total number of inhabited houses in Civic Districts, which in 1841 was 151,381, showed an increase at each successive Census (1851 excepted) till 1901, when it reached 231,112.

In 1841 the houses of the fourth class in these districts numbered 20,729, or 13.69 per cent. of the total number of inhabited houses. In 1851 they fell to 4,833, or 3.22 per cent.; in 1861 to 3,581, or 2.23 per cent.; and they continued to decrease till 1901, when they were only 527, or 0.23 per cent. of the inhabited houses.

Of third class houses in 1841 there were 40,488, or 26.75 per cent. of the total inhabited houses. There was a slight increase in 1851, when they were 40,955, or 27.31 per cent. They have decreased at each Census since that date. In 1861 the number was 38,943, or 24.32 per cent.; in 1881, 32,143, or 17.01 per cent.; in 1891, 26,137, or 13.03 per cent.; while in 1901 it fell to 22,268, or 9.64 per cent.

There were 66,062 second class houses in Civic Districts in 1841, representing 43.64 per cent. of the total inhabited houses in these districts. This number increased to 76,243, or 50.83 per cent., in 1851. In 1861 it rose to 88,037, or 54.97 per cent. In 1881 houses of this class numbered 121,707, or 64.39 per cent.; in 1891 they amounted to 139,909, or 69.76 per cent.; and at the last Census, 1901, they reached 171,792, or 74.33 per cent.

Houses of the first class in Civic Districts show a continuous rise in number at each Census during the period 1841–1901. In 1841 they numbered 24,102, or 15.92 per cent. of the total number of inhabited houses; while in 1901 the number stood at 36,525, representing a percentage of 15.80.

Rural Districts.—The total number of inhabited houses in Rural

Districts shows a continuous decrease at each Census from 1841 to 1901. In the former year 1,177,458 inhabited houses were enumerated, in 1851 the number fell to 896,237, in 1861 to 835,001, and in 1881 to 725,111. There was a further decrease in 1891 to 670,017, and in 1901 to 627,046.

The inhabited houses of the fourth class in Rural Districts in 1841 numbered 470,549, or 39.96 per cent. of the total inhabited houses. They fell in 1851 to 130,756, or 14.59 per cent. ; in 1861 to 85,793, or 10.28 per cent. ; in 1881 to 38,804, or 5.35 per cent. In 1891 the number had fallen to 19,761, or 2.95 per cent. ; and in 1901 it was only 9,346, or 1.49 per cent.

In 1841 there were 492,809 houses of the third class in Rural Districts, representing 41.85 per cent. of the total inhabited houses in such districts. In 1851 the number rose to 500,757, or 55.87 per cent. of the total. Each subsequent Census showed a decrease, and in 1901 the number had fallen to 229,338, or 36.58 per cent. of the total.

Houses of the second class show a continuous increase from 1841 to 1901. In 1841 they were 198,122, or 16.83 per cent. of all the inhabited houses. In 1851 the percentage rose to 27.06, in 1861 to 32.65, in 1881 to 41.45, and in 1891 to 48.76. In 1901 the number of houses of this class was 349,662, or 56 of every 100 houses of all classes.

First class houses in Rural Districts in 1841 numbered 15,978, or 1.36 per cent. Notwithstanding the decrease in the population, the number and percentage of these houses increased at each successive Census, till in 1901 they were 38,700, or 6.17 per cent. of the total inhabited houses. The percentages for the years 1851, 1861, 1881, and 1891 were respectively 2.48, 3.09, 4.61, and 5.54.

HOUSE ACCOMMODATION.

I now pass to the second branch of my subject—viz., house accommodation.

In connection with their scheme of house classification, the Commissioners for taking the Census of 1841 devised an arrangement for classifying house accommodation, which has been adopted since that date.* Under this plan the accommodation has been arranged under four classes, viz. :—

First class accommodation consisting of first class houses, occupied by one family.¶

* See note (b) on page 52.

Second class accommodation, consisting of second class houses occupied by one family, or of first class houses occupied by two or three families.

Third class accommodation, comprising third class houses with one family each, or second class houses with two or three families, or first class houses occupied by four or five families.

Fourth class accommodation, includes all fourth class houses, third class houses with more than one family, second class houses with four or more families, and first class houses inhabited by six or more families.

Whole of Ireland.—In 1841 the number of families having only fourth class accommodation formed 42.46 per cent. of the total number of families in the country. In 1851 the percentage fell to 23.60, and in 1861 to 17.46. In 1901 the percentage of families having fourth class accommodation was only 4.53, or little more than one-tenth of the percentage in 1841.

In 1841 the percentage of families having third class accommodation was 39.00. This rose in 1851 to 48.86, and in 1861 to 49.06, since which date it has shown a decline. In 1901 the percentage was 31.64.

There has been a steady increase in the proportional number of families having accommodation of the second class in the period 1841–1901. Thus, in 1841 only 16.41 per cent. of the total number of families had second class accommodation, while the percentage rose to 24.27 in 1851, and to 29.55 in 1861. In 1881 it was 40.59, and in 1901, 56.37.

Again, while in 1841 the percentage of families enjoying first class accommodation was only 2.13, the relative figure rose gradually till in 1901 it reached 7.46 per cent.

Civic Districts.—Turning to the house accommodation in Civic Districts, we find that the number of families having only fourth class accommodation was, in 1841, 86,067, or 36.67 per cent. of the total number of families, and that the percentage gradually diminished, till in 1901 the number of families with accommodation of the lowest class was 29,354, the percentage being 10.58, or little more than one-fourth of the percentage in 1841.

The number of families having accommodation of the third class in 1841 was 79,545, or 33.89 per cent. This percentage increased in 1851 to 35.89, and in 1861 to 37.16. In 1881 it had fallen to 31.78, and in 1901 it was only 19.32—the decline in the later periods is, happily, due to an increase in the relative number of families having second class accommodation.

In 1841, 52,526 families, or 22.38 per cent., had accommodation of the second class. This percentage has steadily increased, and in 1901 it reached 59.21.

The percentage of families in the Civic Districts occupying first class accommodation rose materially during the period 1841-1901. In 1841 it was 7.06, while in 1901 it had risen to 10.89.

Rural Districts.—In the Rural Districts of Ireland, in 1841, 539,289 families, or 43.56 per cent. of the families in those districts, had but fourth class accommodation. In 1851 the percentage had fallen to 21.77, in 1861 it was but 15.16, in 1881 it further declined to 6.66 per cent., and in 1891 to 3.70. The percentage in 1901 was only 1.88, or less than one-twentieth of the percentage in 1841.

In 1841, in the Rural Districts, there were 494,841 families with third class accommodation, being 39.97 per cent. of the total number of families in those districts in that year. In 1851 the corresponding percentage rose to 52.11, and in 1861 to 52.40, while in 1881 it fell to 48.94, in 1891 to 43.31, and in 1901 to 37.04. Here, as in the Civic Districts, the decrease in the later years was accompanied by an increase in the percentage of families having second class accommodation.

There were only 15.28 per cent. of the families in Rural Districts in 1841 who had second class house accommodation (the actual number of such families being 189,138). In 1851 the percentage had risen to 24.01, in 1861 it rose to 29.70, in 1881 to 40.07, in 1891 to 47.74, and in 1901 to 55.12, or nearly quadruple the percentage in 1841.

In the Rural Districts of Ireland in 1841 there were only 14,768 families who enjoyed first class house accommodation, this number representing only 1.19 per cent. of the total number of families in those districts. In 1851 the percentage was 2.11, and it further rose to 2.74 in 1861, to 4.33 in 1881, to 5.25 in 1891, and to 5.96 in 1901, being five times the percentage of families having first class accommodation in the Rural Districts in 1841.

Analysing the returns for the Rural Districts in 1901 by counties, it is found that the percentage of families having first class accommodation in Ireland in 1901 ranged from 2.3 for Mayo to 13.7 for Dublin.

The families having second or third class accommodation formed 92.1 per cent. of the total number of families in the Rural Districts, the range of variation in the several counties being only from 82.9 per cent. for Dublin to 95.6 for Mayo.

The county percentages for fourth class accommodation ranged from 0.5 for Down to 5.3 for Kerry.

I have constructed a series of maps, shaded so as to illustrate the changes which have taken place since 1841 in the percentage of families having fourth class accommodation in the Rural Districts of the several counties. These maps I have now the honour to submit to the Society.

It will be observed from the map for 1841 that, in the whole of the western half of the country the families having fourth class accommodation formed 40 or more per cent. of the total number of families in the Rural Districts in that year, and that, with the exception of the Counties of Down, Dublin, and Wexford, in which the percentage ranged between 20 and 30, in the whole of the rest of the country the families having only fourth class accommodation formed from 30 to 40 per cent. of the total number of families.

An inspection of the map for 1861 shows a great improvement, there being only one county—Kerry—in which the percentage of families having fourth class accommodation amounted to 30 per cent. of the total families. In Mayo, Limerick, Tipperary, Cork, and Meath the percentage ranged between 20 and 30 ; in nine counties it was from 15 to 20 ; in eleven it was from 10 to under 15 ; while in six it did not reach 10.

The map exhibiting the state of things twenty years later than the preceding—that is, in 1881—shows a further great improvement, there being only two counties—Kerry and Limerick—in which the percentage of families having fourth class accommodation reached 10. In twenty-two counties the percentage ranged between 5 and 10, and in the remaining eight it was under 5.

Passing over another period of twenty years, bringing us practically down to the present time, the map for the year 1901 shows a marked improvement when compared with that for 1881, as the highest percentage of families having accommodation of the fourth class was 5.3 only, and this was confined to one county—Kerry—the percentage for all the other counties being less than 5. In eighteen of these it was less than 2 ; and in one—Down—it was only 0.5.

ENUMERATION OF TENEMENTS OF LESS THAN FIVE ROOMS.

I now pass to the subject of tenements of less than five rooms, the enumeration of which formed the special feature of the house accommodation portion of the Census of 1901.

The total number of occupiers of such tenements in Ireland in 1901 was 682,434, or 75.0 per cent. of the total number of families in the country, and of these, 361 were occupiers of part of a room only ; 78,988, or 8.7 per cent. of all families, were occupiers of one room ; 242,710, or 26.7 per cent., occupiers of two rooms ; 224,769, or 24.7 per cent., occupiers of three rooms ; and 135,606, or 14.9 per cent., occupiers of four rooms.

The number of occupiers of less than five rooms in the Province of Leinster was 176,872, or 73.9 per cent. of the number of families in the province, and of these, 176 were occupiers of but a part of a room, 33,499 were in one room tenements, 58,144 had two rooms, 52,164 were occupiers of three rooms, and 32,889 occupied four rooms.

In Munster the number of tenements of less than five rooms was 157,910, or 77.1 per cent. of the families in the Province, the distribution being as follows :—Part of a room, 132 ; one room, 17,920 ; two rooms, 54,130 ; three rooms, 52,303 ; and four rooms, 33,425.

In Ulster the number of occupiers of less than five rooms was 233,574, or 70.0 per cent. of the total number of families in the Province—this number being composed of 29 cases where the occupier had but part of a room, 17,176 single room tenements, 82,893 cases of two rooms, 73,211 tenements of three rooms, and 60,265 where there were four rooms in the tenement.

The number of occupiers with less than five rooms in Connaught was 114,078, or 89.5 per cent. of the total number of families in the Province—the 114,078 tenements consisting of 24 cases in which the occupier had but part of a room ; 10,393 tenements of one room ; 47,543 two room tenements ; 47,091 tenements of three rooms ; and 9,027 cases where there were four rooms in the tenement.

From these figures we deduce the fact that in Ulster the tenements occupied by 30 per cent. of the families in the Province consisted of five or more rooms, and that the corresponding percentage in Leinster was 26.1, in Munster 22.9, and in Connaught 10.5, only or little more than one-third of the percentage for Ulster.

TENEMENTS OF ONE ROOM.

The most interesting statistics in connection with the enumeration of tenements of less than five rooms are those showing the number of occupants of tenements of one room.

The total number of such tenements in Ireland in 1901 was

79,149. Of these there were 20,994 cases in which the room had but one occupant ; 41,918 where the room had two, three, or four occupants ; 13,351 in which there were five, six, or seven occupants ; and 2,886 in which there were eight or more occupants, including 786 cases of nine persons, 364 of ten persons, 138 of eleven persons, and 68 of twelve or more persons in the room. The total number of cases in which there were five or more persons in the room was 16,237, and the number of persons inhabiting such rooms was 101,845, or 2.3 per cent. of the total population of the country.

In the Province of Leinster the total number of tenements of one room was 33,576. There were 7,562 cases in which one person occupied the room ; 18,910 cases in which the occupants numbered two, three, or four persons ; 6,184 cases in which they numbered five, six, or seven persons ; and 920 cases in which they numbered eight or more persons. These last included 544 cases where the room was occupied by eight persons ; 245 where it was tenanted by nine persons ; 91 where it was tenanted by ten persons ; 28 cases where the occupants numbered 11 persons ; and 12 cases of 12 or more persons in the room.

The total number of cases in the Province in which the room was inhabited by five or more persons was 7,104, and the number of persons in these families was 43,085, or 3.74 per cent. of the total population of the Province.

In the Province of Munster the total number of one room tenements was 17,979. In 4,895 of these tenements the room was occupied by one person only. There were 9,439 cases where it was occupied by two, three, or four persons ; 2,874 cases where the occupants numbered five, six, or seven persons ; and 771 cases where they numbered eight or more persons, including 368 cases of occupation by eight persons, 225 by nine persons, 104 by ten persons, 39 by eleven persons, and 35 by twelve or more persons. The cases where there were five or more persons in the room numbered 3,645, and these families consisted of 23,459 persons, or 2.18 per cent. of the population of the Province.

There were 17,189 one room tenements in the Province of Ulster—viz., 5,706 cases where the room was in the occupation of one person ; 8,395 where there were two, three, or four occupants ; 2,479 cases in which the occupants numbered five, six, or seven persons ; and 609 where they numbered eight or more persons. The last number was composed of 317 cases of eight persons ; 164 cases of nine persons ; 78 cases of ten persons ; 37 cases of eleven persons ; and 13 cases in which the occupants

numbered twelve or more persons. The number of cases in which the room was occupied by five or more persons was 3,088, and the persons forming these families numbered 19,623, or 1.24 per cent, of the total population of the Province.

In the Province of Connaught the number of one-room tenements was 10,405. This total was composed of 2,831 cases where one person was in occupation of the tenement ; 5,174 where there were two, three, or four persons ; 1,814 where there were five, six, or seven persons ; and 586 cases where there were eight or more occupants of the room, including 301 cases of occupation by eight persons, 152 by nine persons, 91 by ten persons, 34 by eleven persons, and eight by twelve or more persons. The cases in which there were five or more persons in the room numbered 2,400, and the occupants numbered 15,678, or 2.42 per cent. of the population of the Province.

COMPARATIVE STATISTICS FOR ENGLAND AND SCOTLAND.

It is, unfortunately, impossible to compare the figures for Ireland in 1901 with previous statistics, as the recent Census was the first in which inquiry into the number of occupants of tenements of less than five rooms was made. A comparison can, however, be instituted for the whole country in 1901, with similar returns for England and Scotland.

The number of tenements of one room in England and Wales in 1901 was 251,667, or 3.6 per cent. of the total number of tenements. Of these, 107,819 were occupied by one person ; 77,179 by two persons ; 55,813 by three or four persons ; and 10,856, or 0.15 per cent. of all tenements by five or more persons—the occupants of these 10,856 rooms numbering 60,044, or 0.18 per cent. of the total population.

The number of tenements of one room in Scotland in 1901 was 169,798, or 17.5 per cent. of the total number of tenements. These comprised 45,266 cases of tenements occupied by one person ; 41,279 cases of two occupants ; 51,700 where three or four persons were in occupation ; and 31,553, or 3.27 per cent. of the total number of tenements of all classes, where the occupants numbered five or more. The total number of persons in the last group was 188,049, or 4.20 per cent. of the total population of the country.

Comparing these figures we find that, as regards the percentage of the tenements of all classes, which were one room tenements occupied by five or more persons, the three countries stand thus—

			Percentage
England	..	..	0.15
Scotland	..	..	3.27
Ireland	..	..	1.78

The actual state of things in each country will be more evident if we compare the number of persons in the one room tenements, having five or more occupants, with the total population of all classes.

We find that in England, of a total population of 32,527,843, there were only 60,043 persons, or 0.18 per cent., who were inhabitants of one room tenements having five or more occupants each. In Ireland the corresponding percentage was 2.28, and in Scotland 4.20.

TENEMENTS OF ONE ROOM IN THE SIX COUNTY BOROUGHES OF IRELAND.

I shall now refer to the one room tenements in the six County Boroughs of Ireland.

In Dublin, of the total number of 59,263 families, 21,747, or 36.70 per cent., were located in one room tenements.

In 3,278 of these cases, or 5.53 per cent. of the total number of families, the family consisted of one person only; in 5,544, or 9.36 per cent., there were two persons in the family; in 7,776 cases, or 13.12 per cent., there were three or four persons in the family; in 4,576, or 7.72 per cent., there were five, six or seven; and in 573 cases, or 0.97 per cent., the family consisted of eight or more persons each, including 145 of nine persons, 47 of ten persons, 13 with eleven, and 6 in which there were twelve or more occupants of the single room. The total number of persons in the families of five or more persons in one room tenements was 30,837, or 10.61 per cent. of the total population of the city.

The total number of families in Belfast was 69,981, and of these there were only 697, or 1.00 per cent., in tenements of one room. Of the 697 cases there were 307, or 0.44 per cent., in which the family consisted of one person only; in 190, or 0.27 per cent., there were two persons in the family; in 140, or 0.20 per cent., there were three or four persons; and in the remaining 60 cases, or 0.09 per cent., the family consisted of five, six or seven persons. The total number of individuals in the 60 families of five or more persons in one room tenements in Belfast was 334, or only 0.10 per cent. of the total population of the city.

It will be observed that there is a vast disparity between the proportion of one room tenements in Belfast and the corresponding

proportion in Dublin, and that in Belfast there is very little overcrowding in single room tenements.

In Cork, of 15,255 families, 1,620, or 10.62 per cent., were located in tenements of one room; of these 1,620 tenements, 527, or 3.46 per cent. of the tenements of all classes, were occupied by one person; 441, or 2.89 per cent., by two persons; 478, or 3.13 per cent., by three or four persons; 157, or 1.03 per cent., by five, six, or seven persons; and 17, or 0.11 per cent., by eight or more persons—the total number of persons in the one room tenements having five or more occupants each being 1,022, or 1.34 per cent. of the population of the city.

In Londonderry County Borough the number of families inhabiting tenements of one room was 529, or 7.15 per cent.; 131, or 1.77 per cent. of the total number of tenements, were occupied by one person; 193, or 2.61 per cent., by two persons; 165, or 2.23 per cent., by three or four persons; 34, or 0.46 per cent., by five, six, or seven persons; and there were six cases where there were eight or more persons in occupation of the room. The 40 rooms, in each of which there were five or more persons, had 241 occupants, being 0.60 per cent. of the population of the city.

In Limerick, 1,166 families, or 15.80 per cent. of the total number, occupied tenements of one room, including 302 cases, or 4.09 per cent., where there was one occupant; 338, or 4.58 per cent., where there were two occupants; 321, or 4.35 per cent., where there were three or four occupants; 184, or 2.49 per cent., where there were five, six, or seven persons; and 21 cases, or 0.29 per cent., where the number of persons was eight or more. The occupants of the rooms with five or more persons each numbered 1,249, or 3.27 per cent. of the population of the city.

The number of families in Waterford in occupation of one room was 368, or 7.28 per cent. There were 138 cases, or 2.73 per cent., where the family consisted of one person; 109, or 2.16 per cent., where it consisted of two persons; 87, or 1.72 per cent., where there were three or four persons; 30, or 0.59 per cent., where there were five, six, or seven persons; and 4 where there were eight persons or more in the tenement—the total number of occupants of the one room tenements in which there were five or more persons being 204, or 0.76 per cent. of the population of the city.

Comparing the four cities of Cork, Londonderry, Limerick, and Waterford with reference to the subject of overcrowding in one room tenements, and taking those cases in which there were five

or more persons in the room as representing that class, we find that in Limerick it comprised 2.8 per cent. of the total number of families, and 3.27 per cent. of the population of the city ; in Cork, 1.1 per cent. of the families, and 1.34 per cent. of the population ; in Waterford, 0.7 per cent. of the families, and 0.76 per cent. of the population ; and in Londonderry, 0.5 per cent. of the families, and 0.60 per cent. of the population, or little more than one-sixth of the corresponding percentage for Limerick.

COMPARATIVE STATISTICS FOR ENGLISH AND SCOTTISH CITIES.

As already stated, there are no previous Irish statistics available on the subject of overcrowding, and, therefore, no comparison can be instituted between the state of things in the six County Boroughs in 1901 and at an earlier date. I have, however, thought it well to bring before the Society the figures relating to this matter for a few cities in England and Scotland.

In London of a total of 1,019,646 tenements, 149,524, or 14.66 per cent. were one room tenements. These consisted of 60,421 cases (or 5.92 per cent. of the total number of London tenements), in which the room was occupied by one person only ; 48,341, or 4.74 per cent. of the total in which there were two occupants in each room ; 34,959 or 3.43 per cent., rooms with three or four occupants each, and 5,803 cases, or 0.57 per cent. in which there were five or more persons in each room, including 161 cases of single room tenements having eight or more occupants. The occupants of the rooms having five or more persons in each numbered 31,615, or 0.70 per cent. of the total population.

In Liverpool the total number of tenements was 138,845. Of these 8,527, or 6.14 per cent. were tenements of one room. The tenements of one room included 2,587 cases (or 1.86 per cent. of the total number of tenements) where the room was occupied by one person ; 3,181 cases, or 2.29 per cent., in which it was occupied by two persons ; 2,457, or 1.77 per cent., in which it was occupied by three or four persons ; and 302, or 0.22 per cent., in which the occupants were five or more in number. In these 302 rooms there were 1,614 persons, being 0.24 per cent. of the total population of the city.

The total number of tenements in Manchester was 112,854. Of this total 2,140, or 1.90 per cent. were tenements of one room. These one room tenements comprised 820 cases, or 0.73 per cent. where the room was occupied by one person ; 870, or 0.77 per cent., where it was occupied by two persons ; 405, or 0.36 per

cent., where the tenants numbered three or four persons ; and 45 cases where there were five or more persons in occupation. The number of persons in these 45 rooms was 261, or only 0.05 per cent. of the total population.

Turning to Scotland : In Edinburgh, out of a total of 71,504 tenements of all kinds, 12,144, or 16.98 per cent., were tenements of one room only. An analysis shows that in 4,794 cases, or 6.70 per cent., the room was occupied by one person ; in 3,112 cases, or 4.35 per cent., it was inhabited by two persons ; in 2,950 instances, or 4.13 per cent., there were three or four persons in occupation ; whilst in 1,288 cases, or 1.80 per cent., the occupants numbered five or more persons—the total number of persons in these 1,288 rooms amounting to 7,360, or 2.33 per cent. of the population of Edinburgh.

In Glasgow, where the total number of tenements of all descriptions was 163,258, there were 42,623 tenements, or 26.11 per cent. of one room. These consisted of 8,603 cases, or 5.27 per cent. of the total, in which the room was occupied by one person ; 12,029, or 7.37 per cent., where it was inhabited by two persons ; 15,002 cases, or 9.19 per cent., where it was inhabited by three or four persons ; and 6,989 cases, or 4.28 per cent., where the occupants were five or more in number. The total number of occupants in these 6,989 cases amounted to 39,880, or 5.24 per cent. of the population of the city.

The following statement shows succinctly the relative overcrowding in one-room tenements in the cities above referred to. It will be observed that Dublin occupies the unenviable position of being by far the worst in this respect :—

CITIES	Number of One Room Tenements having five or more occupants each, in every 100 tenements of all classes	Number of Persons in One Room Tenements with five or more occupants in every 100 of the total population
Dublin	.. 8.69	10.61 *
Belfast	.. 0.09	0.10
London	.. 0.57	0.70
Liverpool	.. 0.22	0.24
Manchester	.. 0.04	0.05
Edinburgh	.. 1.80	2.33
Glasgow	.. 4.28	5.24

* As stated, this percentage has reference to the County Borough of Dublin—being the City as extended under the Dublin Corporation Act, 1900. Taking the whole of the Dublin Registration Area—which consists of the City of Dublin and the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown—the number of persons in the one-room tenements having five or more occupants in every 100 of the total population was 8.7.

In bringing this paper to a close, I would say that the material improvement in the housing of the people of Ireland since 1841 is very satisfactory, but there is still much to be accomplished.

The substitution of the modern labourers' cottages in the Rural Districts for the mud cabins, formerly so numerous, and the erection of Artisans' Dwellings in some of the larger Urban Districts have done much to provide suitable habitations for the people; but the statistics of tenements of one room show that in many parts of the country a considerable proportion of the population are still exposed to all the evils resulting from overcrowding. The total effacement of fourth class houses and the reduction of the number of cases of families having only fourth class accommodation should be aimed at.

It is gratifying to know that this pressing subject is at present attracting earnest attention in Dublin. The action of the Municipal Council for some years past has resulted in a very considerable change for the better in several parts of the city, and great good has been effected through the princely munificence of Lord Iveagh.

The movement for the improvement of the dwellings of the poor has recently received an important impetus by reason of the great practical interest manifested in it by His Excellency the Lord Lieutenant, who has by personal inspection acquired a full knowledge of the necessities of the case, and it may be confidently hoped that the efforts now being made will, ere long, result in a substantial amelioration of the sad condition of the humbler classes in so far as regards their house accommodation.

In conclusion, I desire to express my warm thanks to Mr. Peter J. O'Neill, Honorary Treasurer of the Society, and one of the Superintendents in my Department, for his very kind aid in the preparation of this paper.

[NOTE.—This paper was illustrated by numerous tables, diagrams, maps, and views shown on the screen.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—LOMBE ATTHILL, M.D., F.R.C.P.I.

General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D., F.R.C.P.I.

Sectional Secretary—JOHN H. GLENN, M.D., F.R.C.P.I.

Friday, April 24, 1903.

Card Specimens.

DR. W. J. SMYLY exhibited the following card specimens:—

- (a) Two myomatous uteri—No. 1, weighing 9 lbs., removed because of its size and continued growth; No. 2, for pain and pressure on the rectum. (b) Uterus removed for cancer of cervix.
- (c) Tubes removed for tuberculous disease.

Specimens.

DR. W. J. SMYLY also showed the following specimens:

- (a) Ovarian papillomata. Patient was first seen on October 18th, 1902. The tumours, which were confounded with the uterus, on bimanual examination were supposed to be myomata. Sent for again on the 28th, the abdomen was then very much distended with ascitic fluid and patient suffering intense pain. Abdominal coeliotomy, October 31st, 1902. The abdominal peritoneum was studded with secondary growths, and the omentum was a mass of disease. The two cystic ovaries, which were universally adherent, were removed with much difficulty, and also the omentum. The patient recovered and is now in the South of France. (b) The patient from whom the specimen was removed was first seen in February, 1901. Though she had long passed the menopause, a sanguineous discharge from the uterus had been going on more or less for two months. Curetting was advised, but declined, and she was not seen again until six weeks ago, when a fungous growth was observed protruding from the os uteri. Vaginal hysterectomy was performed. The operation was a difficult one, owing to the friability of the uterus, but was successfully carried out, and the patient made a good recovery. It is remarkable that an operation

was still possible two years after the probable commencement of the disease. (c) This patient suffered intense distress from pelvic pressure, and, the uterus being found enlarged and retroverted, the symptoms were attributed to the displacement. Abdominal suspension of the uterus by Kelly's method was performed, but owing to obstruction of the bowel the abdomen had to be re-opened, and the cause of the obstruction was found to be an adhesion of the rectum to the cervix, which it had been found impossible to separate at the original operation; the uterus was therefore allowed to return to its former position, and the abdomen closed. Her sufferings continued to be so great that she was obliged to relinquish her employment, and when the removal of the uterus was suggested she readily consented to have the operation performed. About a fortnight ago Dr. Smyly performed a supra-vaginal amputation, and she has made a good convalescence.

DR. LANE showed a large dermoid cyst removed two months after confinement.

DR. PUREFOY showed a specimen of (a) General follicular enlargement of ovary; (b) Rokitanski's tumour of ovary.

Gynæcological Report of the Rotunda Hospital.

DR. PUREFOY read the gynæcological report of the Rotunda Hospital for the year 1901-2. [It will be found at page 341 of volume CXV.]

The discussion was postponed until the next meeting of the Section.

LITERARY NOTE.

MR. HEINEMANN, Bedford-street, London, W.C., has just ready for publication a small volume entitled "Hay Fever and its Successful Treatment." Sections are devoted to the history, causes, time of occurrence, duration, &c., of the disease, and there is an interesting discussion upon the pollen theory of its causation. Its treatment is very fully gone into, and the author makes an especial point of the diet that he considers it most desirable for a patient to follow when suffering from an attack. A notable feature in this little book is an appendix in the form of a bibliography, enabling the reader, if he so desires, to study all the best works upon the subject. The author of the book, Mr. Hollopeter, is Clinical Professor of Pediatrics in the Medico-Chirurgical College of Philadelphia, and is a Fellow of the American Academy of Medicine.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D. Univ. Dubl. ;

F.R.C.P.I. ; F.R. Met. Soc. ;

Diplomate in State Medicine and Ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS.

For four weeks ending Saturday, May 23, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending May 23, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 22·4 per 1,000 of their aggregate population, which, for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, May 23, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	May 2	May 9	May 16	May 23			May 2	May 9	May 16	May 23	
22 Town Districts	23·3	22·6	19·7	22·4	22·0	Lisburn -	13·6	27·3	36·4	27·3	26·2
Armagh -	27·5	0·0	13·7	6·9	12·0	Londonderry -	29·0	23·9	17·6	22·7	23·3
Ballymena -	19·2	23·9	19·2	0·0	15·6	Lurgan -	31·0	17·7	8·9	4·4	15·5
Belfast -	21·4	22·5	18·5	23·8	21·6	Newry -	25·2	25·2	29·4	8·4	22·1
Clonmel -	25·6	25·6	10·3	25·6	21·8	Newtownards -	28·6	34·3	11·4	17·2	22·9
Cork -	19·2	22·6	14·4	21·2	19·4	Portadown -	10·3	15·5	10·3	5·2	10·3
Drogheda -	36·8	8·2	12·3	24·5	20·5	Queenstown -	6·6	0·0	26·4	33·0	16·5
Dublin (Reg. Area) -	25·7	25·3	22·3	22·4	23·9	Sligo -	48·0	19·2	0·0	52·8	30·0
Dundalk -	4·0	16·0	51·8	19·9	22·9	Tralee -	10·6	0·0	0·0	21·1	7·9
Galway -	11·7	11·7	42·7	23·3	22·4	Waterford -	17·5	19·5	25·3	11·7	18·5
Kilkenny -	49·1	24·6	9·8	59·0	35·6	Wexford -	18·7	18·7	28·0	18·7	21·0
Limerick -	26·0	20·5	10·9	20·5	19·5						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, May 23, were equal to an annual rate of 1.0 per 1,000, the rates varying from 0.0 in eighteen of the districts to 10.3 in Clonmel—the 5 deaths from all causes registered in that district including one from diphtheria and one from diarrhoea. Among the 164 deaths from all causes registered in Belfast are one from measles, one from diphtheria, 4 from enteric fever, and 2 from diarrhoea.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994; that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, May 23, amounted to 220—104 boys and 116 girls; and the deaths to 173—88 males and 85 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 23.8 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the Area, the rate was 22.4 per 1,000. During the twenty weeks ending with Saturday, May 23, the death-rate averaged 27.0, and was 2.3 below the mean rate for the corresponding portions of the ten years 1893–1902.

As in the week preceding, 4 deaths from small-pox were registered, making a total fatality of 21 from the disease for the 11 weeks ended Saturday, May 23. All the deaths were of females, aged respectively 9, 28, 32, and 46 years. In 2 of the fatal cases there was no sign of primary vaccination. One patient, aged 9 years, had never been vaccinated; the fourth patient, aged 32 years, was stated to have one very faint primary mark. Measles, scarlet fever, influenza, and whooping-cough each caused one death; 2 deaths were caused by enteric fever and 2 by *diarrhoea*. The deaths from enteric fever in the 4 preceding weeks numbered, respectively, one, 2, 3, and one.

Tuberculous disease caused 34 deaths—viz., 4 from tuberculous

phthisis, 20 from *phthisis*, 6 from tuberculous meningitis, 2 from tuberculous peritonitis, and 2 from other forms of the disease.

Two deaths were due to carcinoma, one to sarcoma, and 3 to *malignant disease*, ("*cancer*").

Diseases of the nervous system caused 13 deaths, including 6 deaths of children, all under 5 years of age, from *convulsions*.

There were 26 deaths from diseases of the heart and blood-vessels.

Diseases of the respiratory system caused 36 deaths, which number equals an annual rate of 5 per 1,000 of the population of the Dublin Registration Area. The annual average rate for the corresponding period of the past 10 years was 4 per 1,000. There were 20 deaths from bronchitis, one death from croupous pneumonia, 3 deaths from broncho-pneumonia, and 7 deaths from *pneumonia* included in the total.

Five deaths were registered as due to accidental violence, and there was one death from homicide and one from suicide.

In 7 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 5 children under 5 years of age (including 4 infants under one year old) and the death of one person aged 81 years.

Forty-four of the persons whose deaths were registered during the week ended May 23 were under 5 years of age (27 being infants under one year, of whom 14 were under one month old), and 43 were aged 60 years and upwards, including 17 persons aged 70 and upwards, of whom 8 were octogenarians.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast :—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended May 23, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	(German Measles (Rubella))	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Group	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	May 2	23	4	-	40	-	-	9	-	2	12	10	-	2	4	106
	May 9	26	7	-	31	1	-	5	-	12	11	17	1	6	-	107
	May 16	16	8	2	27	-	-	10	-	12	6	18	-	6	-	95
	May 23	10	6	-	28	-	-	5	-	1	6	17	-	5	-	78
Rathmines and Rathgar Urban District	May 2	-	-	-	5	-	-	-	-	-	-	-	-	-	-	5
	May 9	-	1	-	5	-	-	1	-	-	-	-	-	-	-	7
	May 16	-	2	-	1	-	-	12	-	1	1	1	-	-	-	6
	May 23	1	2	-	11	-	-	12	-	1	1	3	-	6	-	27
Pembroke Urban District	May 2	-	9	-	8	-	-	-	-	-	-	-	-	-	-	17
	May 9	1	15	-	4	1	-	1	-	-	1	-	-	-	-	25
	May 16	1	5	-	-	-	-	-	-	-	-	1	-	1	-	8
	May 23	1	8	-	-	-	-	-	-	-	-	1	-	4	-	14
Blackrock Urban District	May 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May 9	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	May 16	-	-	-	2	-	-	-	-	-	1	1	-	-	-	4
	May 23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kingstown Urban District	May 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May 23	-	-	-	1	-	-	-	-	-	-	-	-	1	-	2
City of Belfast	May 2	-	-	-	4	-	-	3	1	14	15	7	-	-	-	44
	May 9	-	-	-	6	-	-	7	-	11	17	9	-	-	-	50
	May 16	-	-	-	7	-	-	3	-	14	17	4	-	-	-	45
	May 23	-	-	-	8	-	-	3	-	12	14	5	1	-	-	43

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, May 23, 1903, 12 cases of small-pox were admitted to hospital, 12 were discharged, there were 4 deaths, and 39 patients remained under treatment at its close. Besides these there were 41 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Three cases of measles were admitted to hospital, being 6 below the admissions for the preceding week : 22 cases were discharged, there was one death, and 24 cases remained under treatment at the close of the week.

Thirty cases of scarlatina were admitted to hospital, 28 cases were discharged, there was one death, and 189 cases remained under treatment at the close of the week.

Six cases of diphtheria were admitted to hospital, 11 were discharged, and 24 cases remained under treatment at the close of the week.

Four cases of enteric fever were admitted to hospital, 12 cases were discharged, and 22 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 4 cases of pneumonia were admitted to hospital, 5 patients were discharged, there were 3 deaths, and 16 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, May 23, in 76 large English towns, including London (in which the rate was 14.8), was equal to an average annual death-rate of 15.5 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.2 per 1,000, the rate for Glasgow being 18.6, and for Edinburgh 14.6.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of May, 1903.

Mean Height of Barometer,	-	-	-	29.871 inches.
Maximal Height of Barometer (23rd, at 9 a.m.),				30.447 „
Minimal Height of Barometer (4th, at 9 p.m.),				29.246 „
Mean Dry-bulb Temperature,	-	-	-	51.7°.
Mean Wet-bulb Temperature,	-	-	-	48.5°.
Mean Dew-point Temperature,	-	-	-	45.4°.
Mean Elastic Force (Tension) of Aqueous Vapour,				.303 inch.
Mean Humidity,	-	-	-	80.2 per cent.
Highest Temperature in Shade (on 25th and 28th),	-	-	-	68.0°.
Lowest Temperature in Shade (on 17th),				40.9°.
Lowest Temperature on Grass (Radiation) (8th),				38.6°.
Mean Amount of Cloud,	-	-	-	63.9 per cent.
Rainfall (on 17 days),	-	-	-	2.384 inches.
Greatest Daily Rainfall (on 29th),	-	-	-	.479 inch.
General Directions of Wind,	-	-	-	E.N.E., N.E., E.

Remarks.

Two seasons were presented by May, 1903—cold, dull, rainy weather held during the first sixteen days of the month, whereas the second half was fair, bright, dry and summer-like, with the exception of the 29th–30th, when a heavy fall of rain took place. The mean amount of cloud was large—63.9 per cent., yet from the 23rd to the 28th inclusive the sky was almost cloudless. The estimated duration of bright sunshine was 178.5 hours, compared with 178.75 hours in 1902, and 302.25 hours in 1901. The daily mean duration of sunshine was 5.76 hours, compared with 9.75 hours in May, 1901.

In Dublin the arithmetical mean temperature (52.9°) was slightly above the average (52.1°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 51.7°. In the thirty-eight years ending with 1902, May was coldest in 1869 (M. T. = 48.2°), and warmest in 1893 (M. T. = 56.7°). In 1902 the M. T. was 49.9°.

The mean height of the barometer was 29.871 inches, or 0.118 inch below the corrected average value for May—namely, 29.989 inches. The mercury rose to 30.447 inches at 9 a.m. of the 23rd, and fell to 29.246 inches at 9 p.m. of the 4th. The observed range of atmospheric pressure was, therefore, 1.201 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 51.7°, or 6.5° above the value for April, 1903—45.2°. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .47), the value is 52.5°, or 0.8° above the average mean temperature for May, calculated in the same way, in the thirty years, 1871–1900, inclusive (51.7°). The arithmetical mean of the maximal and minimal readings was 52.9°, compared with a thirty years' average of 52.1°. On the 25th, and again on the 28th, the thermometer in the screen rose to 68.0°—wind, E. and N.E. respectively; on the 17th the temperature fell to 40.9°—wind, E. The minimum on the grass was 38.6°, on the 8th.

The rainfall amounted to 2.384 inches, distributed over 17 days. The average rainfall for May in the thirty-five years, 1866–1900, inclusive, was 2.020 inches, and the average number of rainy days was 15. The rainfall and the rainy days were, therefore, both above the average. In 1886 the rainfall in May was very large—5.472 inches on 21 days; in 1869, also, 5.414 inches fell on 19 days. On the other hand, in 1895, only .177 inch was measured on but 3 days. In 1896 the fall was only .190 on 7 days. In 1902, 2.798 inches fell on 22 days.

Solar halos appeared on the 21st, 23rd and 24th. High winds were noted on 5 days, but never attained the force of a gale. Hail fell on the 12th. There was a slight fog on the morning of the 25th. Lightning occurred on the 19th.

During the month the thermometer did not fall below 32° in the screen or on the grass. The mean minimal temperature on the grass was 44.3°, compared with 40.3° in 1902, 41.7° in 1901, 41.6° in 1900, 40.6° in 1899, 42.9° in 1898, 40.9° in 1897, 43.1° in 1896, 41.8° in 1895, and 37.6° in 1894. The maximum reached or exceeded 60° on 14 days, but once fell short of 50° (on the 10th).

The rainfall in Dublin during the five months ended May 31st amounted to 12.560 inches on 95 days, compared with 9.973 inches on 81 days in 1902, 7.724 inches on 67 days in 1901, 9.921 inches on 92 days in 1900, 9.652 inches on 87 days in 1899, 10.568 inches on 84 days in 1898, 10.693 inches on 93 days in 1897, 5.971 inches on 70 days in 1896, 10.410 inches on 68 days in 1895, 12.709 inches on 90 days in 1894, and a thirty-five years' average of 10.140 inches on 80 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 3.270 inches, distributed over 16 days—.830 inch falling on the 29th, and .595 inch on the 2nd. The total fall since January 1st, 1903, equals 15.655 inches on 79 days, compared with 11.750 inches on 68 days in 1902, 11.205 inches on 65 days in 1901, 16.381 inches on 84 days in 1900, 15.475 inches on 86 days in 1899, 12.445 inches on 78 days in 1898, 14.120 inches on 90 days in 1897, 5.716 inches on 52 days in 1896, 12.845 inches on 58 days in 1895, and 15.696 inches on 85 days in 1894.

Dr. Arthur S. Goff returns the rainfall at Lynton, Dundrum, Co. Dublin, as 2.86 inches on 18 days, compared with 3.26 inches on 22 days in 1902, and 1.09 inches on 10 days in 1901. The greatest daily measurement was .57 inch on the 2nd. The temperature in the shade ranged from 68° on the 18th, 21st, 22nd and 24th to 40° on the 19th. The mean temperature of the month was 53.1°, compared with 50.5° in 1902, and 52.6° in 1901.

The rainfall at Cloneevin, Killiney, was 2.54 inches on 15 days, compared with 2.58 inches on 21 days in 1902, and 1.20 inches on 10 days in 1901. The maximum was .71 inch on the 29th. The average rainfall in May at this station during the 18 years, 1885-1902, inclusive, was 2.062 inches on 13.6 days. Since January 1st, 1903, 12.21 inches of rain have fallen at Cloneevin on 91 days.

Dr. B. H. Steede, M.D., D.P.H., reports that at the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall for the month was 2.762 inches on 19 days, .550 inch being registered on the 2nd, and .529 inch on the 29th. Since January 1st, 1903, 17.542 inches of rain have fallen at this station on 96 days. The highest temperature in the shade was 67.0° on the 31st, and the lowest was 39.9° on the 17th.

At Cork the rainfall was 3.04 inches on 17 days, or 0.86 inch over the average for May. The greatest day's rainfall was 0.92 inch on the 2nd. Up to May 31st, the rainfall of 1903 in Cork amounted to 21.75 inches, or 6.65 inches above the average.

At the Railway Hotel, Recess, Connemara, Co. Galway rain fell on 15 days to the amount of 3.100 inches, the maximal daily measurement being .450 inch on the 13th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, Co. Dublin, reports that the mean temperature at that health resort was 51.8°, being 0.6° above the average for the month during the previous 5 years. The extremes were—highest, 67.5° on the 31st; lowest, 41.5° on the 11th and 19th. At Bournemouth the mean was 54.2°, the extremes being—highest, 74° on the 27th; lowest, 39° on the 13th and 19th. The mean daily range of temperature was, at Kingstown, 11.4°, and at Bournemouth 14.6°. The mean temperature of the sea at Sandycove Bathing Place was 49.2°. The rainfall at Kingstown was 2.35 inches on 15 days, being 0.54 inch above the average for 10 years (1873–80 and 1901–2), at Bournemouth it was 2.32 inches on 11 days. The total duration of bright sunshine was 162.4 hours at Kingstown, the greatest diurnal duration being 13.9 hours on the 25th; the total duration at the Ordnance Survey Office, Phoenix Park, was 158.7 hours, at Valentia 188.4 hours, at Parsonstown 179.8 hours, at Southport 173.1 hours, and at Eastbourne 275.5 hours.

PERISCOPE.

SECONDARY ERUPTIONS IN SMALL-POX.

IN "The Journal of Cutaneous Diseases," May, 1903, an interesting paper on this subject appeared. The author, Dr. Jay F. Schamberg, Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine, had the opportunity of studying the skin manifestations in about 2,300 cases of small-pox treated in the Municipal Hospital for Contagious and Infectious Diseases, Philadelphia, during the epidemic of 1901-1903. Passing by the various prodromal variolous rashes which have been already thoroughly described, Dr. Schamberg draws attention, in the first instance, to the development upon the skin during the period of desiccation and incrustation of sparsely distributed blebs, containing a thin, dirty, yellow fluid. These blebs may either spring up on previously healthy inter-pustular areas of skin, or result from a direct conversion of the pustules into blebs in different ways which the author describes. The various forms of this pustulo-bleb formation are so common in small-pox that this complication might appropriately be termed *Impetigo variolosa*. Hebra, in 1867, applied the name *Rupia variolosa* to an analogous condition characterised by "central crusts with small vesicular rings, containing a puriform fluid." *Cutaneous gangrene* occasionally occurs during the course of small-pox. It is commonly preceded by an extensive impetigo-variolosa, which increases the liability to the deeper pyogenic infections, such as boils, abscesses, erysipelas and gangrene of the skin. Antiseptic baths, consisting of a 1-10,000 to 1-20,000 solution of corrosive sublimate or of a 1-500 solution of creolin, have a most beneficial action in drying up the impetigo sores and in lessening the tendency to deeper infection. Another secondary eruption in small-pox is the toxic or septic rash which appears in a certain percentage of cases during the stage of decrustation. Between the 6th and the 20th days, and most commonly on the 13th or 14th, a peculiar erythematous efflorescence (*scarlatini-form erythema*), consisting of a diffuse, dusky, punctuated redness, develops on the trunk, extremities, and, at times, the face. This rash lasts for two or three days and then fades away, being often followed by profuse desquamation, occasionally by repeated

exfoliation of the epidermis (*dermatitis exfoliativa variolosa*). In rare instances these secondary rashes may become hæmorrhagic. Dr. Schamberg describes a fatal case of such a purpuric rash in an unvaccinated boy, aged $7\frac{1}{2}$ years. In another boy, a severe variolous impetigo developed, and this was followed, on the 14th day of the small-pox eruption, by an intense *maculo-papular rash*, which, on the trunk, could not be distinguished from measles. On the face, however, there was but little eruption, the rash was brief in duration, and catarrhal symptoms were absent. Dr. Schamberg concludes that the post-variolous rashes are in all probability *septic* or *toxic* in character, and due, doubtless, to the absorption of some poison into the blood. His paper is well illustrated by eight photographs.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Isarol.

THE Society of Chemical Industry at Basle has placed on the market this new pharmaceutical preparation—the “Ammonium Sulphoichthyolicum” of the Swiss Pharmacopœia. Professor F. Egger, Deputy Director of the Universitäts-Poliklinik, Basle, reports that this preparation, formerly known by the name “Ichthyodin mistum,” is a product similar to ichthyol, but exhibiting a more constant composition and greater purity. “Isarol” is a dark brown, viscous fluid of aromatic odour, perfectly soluble in water, partly in alcohol, ether and glycerine, and is easily miscible with fats for producing absorbent ointments. The efficacy of “isarol” was thoroughly tested in the City Policlinic at Basle, where over 200 patients suffering from a variety of diseases were treated with it during 1899, giving most favourable results. This preparation may be used (a) as a vaso-constrictor and antiphlogistic in phlegmons, whitlows, periostitis, tendovaginitis, and rheumatic affections, prescribed as a paste without any addition; (b) as an absorbent, prescribed for burns, eczema, ulcus cruris as a ten per cent. ointment with lanolin; (c) as an antizymotic, prescribed in erysipelas as a ten per cent. isarol-collodion. The sole agents for Great Britain and Ireland are Messrs. Rebman, Limited, 129 Shaftesbury-avenue, Cambridge Circus, London, W.C.

In Memoriam.

CAPTAIN JOSEPH M'ARDLE, R.A.M.C..

M.B., B.CH., B.A.O. R.U.I.

It is with deep regret we have to record the death of a promising and brilliant young Irishman, CAPTAIN M'ARDLE, of the Egyptian Army Medical Service. Captain M'Ardle, who was brother of Surgeon M'Ardle, was on the threshold of what promised to be a very distinguished career. He was a man of many gifts; yet modest, gentle, and unassuming withal. As a student he signalled himself in many ways; and wound up by winning the Gold Medal for Surgery at St. Vincent's Hospital. thus following worthily in the footsteps of his brother.

Passing into the Army Medical Service, he had a varied and honourable career. He served in Crete on the eve of its liberation, and interviewed the famous, but fallen, Egyptian Leader, Arabi Pasha, who in recognition of his kindness and sympathy presented him with his sword. At Omdurman he saw the Conquest of the Soudan completed by the iron grip and tenacity of Lord Kitchener. Thenceforth he was attached to the Egyptian Army, and devoted himself with assiduity and zeal to the duties of his Profession. He possessed surgical ability and skill in a high degree—on one occasion stitching successfully a wound in the heart-wall.

He was much interested in the languages, customs and antiquities of the wonderland of the Nile: yet never forgot the land of his birth and of his love. He was a constant and diligent student of Gaelic language and literature even when abroad, and during home leave pursued his studies amongst the glens of Connemara and Donegal.

No more graceful or fitting tribute could be paid to his character than that conveyed by the Sirdar, Sir Reginald Wingate, in a gracious letter to the grieved and widowed mother of Captain M'Ardle. "It was," he writes, "a great shock and a great sorrow to me to receive the enclosed telegram. I know that on such occasions words of sympathy are of little avail; but I wished to send these few lines to tell you what a high opinion I formed of your son during the period he has been under my command. Both professionally and socially he was one of our most valuable officers, and had he been spared I do not doubt he would have had a brilliant career. We shall miss him dreadfully. He is a

very severe loss, not only to the Egyptian Army, in which he did excellent work, but also to the British Service. I beg you will accept my sincere sympathy in this great and sudden blow which has fallen upon you. I saw your poor son in Khartoum only a few weeks ago, and he appeared then to be in excellent health. I fear his illness must have come on very suddenly, but have no details whatever."

Such a man is a loss to his people and to his country, not readily replaced. In the hearts of his own there is a void which can never be filled. He has left a memory of manliness and worth, the recollection of which will not easily die.

Peace to his ashes! He rests secure "awaiting the Resurrection"—as our Annalists say—in the city ennobled by the sufferings and death of the heroic Gordon.

M. F. Cox.

NOTES ON A CASE OF ACCESSORY PANCREAS.

DR. ALBERT G. NICHOLLS, of M'Gill University, reports a case of this rare abnormality. It was found in the body of a boy who died of tuberculous disease of the spine. "Just at the point where the duodenum pierced the peritoneal covering to form the jejunum was a small flat nodule. This was situated on the left lateral border of the gut on the same side as the pancreas. The nodule was roughly oval in shape, measuring 1.5 c.m., long by 1 c.m. across, and elevated about 5 c.m. above the general level of the serosa. Its margin gradually sloped on all sides, so that the nodule was of the shape of a flattened dome. The serous covering invested it closely, and it had no connection in any way with the main pancreas, which was in its normal site and of normal appearance." Microscopically the nodule consisted of pancreatic tissue, which lay partly in the submucous coat, but invaded also the muscular and subserous layers. No duct could be found, probably owing to its small size, but the microscopic examination made it evident that a duct existed, and that the glandular tissue was active and functional. The explanation of this anomaly is readily given from a consideration of the embryological development of the pancreas.—*Montreal Medical Journal*, Dec., 1900.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*Experiences of a Year's Trial of the Light Treatment for Lupus.** By C. M. O'BRIEN, M.D., L.R.C.P.I.; Physician to the City Hospital for Diseases of the Skin.

THE physical treatment by Finsen light of lupus and certain other skin affections, hitherto incurable, and unhappily so common amongst us, has focussed so much attention of late as to warrant my submitting a short summary of the results obtained during twelve months' practical experience of the method. In order the better to enable those unacquainted with the treatment to form a correct estimate of its therapeutic value a brief description of the apparatus used by me at the City Hospital for Diseases of the Skin, and its method of application, may be of interest, together with the exhibition of a few cases with short descriptive histories, selected from some at present undergoing the treatment, as typical examples of the beneficial effects to be derived from this method when judiciously employed.

The arc lamp is of the stage lamp type, and yields a search-light equivalent to 1,500 candle power. It is worked off the city mains, the voltage of which is reduced to 45 by means of a choking coil and transformer. The lamp is a modification of the "Lortet-Genoud," or French lamp. It consists, in brief,

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 19, 1902.

of two carbon electrodes, supported on a frame, in front of which is a hollow, water-tight, metal shield, in which cold water circulates, and through which the light is filtered, with suppression of the heat rays of the spectrum. In a central opening of this metal jacket are rock crystal lenses, which allow the passage of the ultra-violet rays of the spectrum, almost all of which are absorbed by ordinary glass—the anterior lens acting the part of an ordinary Finsen compressor, against which the affected region is pressed by the patient's own efforts, sufficiently strong to arrest the circulation in the part. The frame carrying the carbon electrodes allows of their being brought close to, or at a distance from, the back lens, the usual working distance being about one inch. By means of a series of joints the lamp may be adjusted to any angle to suit the configuration of patient's face or any region affected.

Method of Procedure Before and After each Sitting.—Having first removed all scales and crusts the patch to be treated is then bathed with weak boric lotion, and with ether if the surface of the skin be greasy. The part prepared thus is now brought in contact with the compressor, and sufficient pressure exercised by the patient to render the patch anæmic. The subsequent reaction depends on, amongst other things, the duration of exposure and the intensity of the light employed, and with certain peculiarities of the patient not very well understood. Experience strengthens my belief that many of the shortcomings hitherto complained of in the use of the French lamp as compared with the Finsen may be obviated by lengthening the duration of each sitting, while, at the same time, increasing the intensity of the light. The usual period allowed for each sitting is fifteen minutes, and twelve ampères the intensity of light. Where the susceptibilities of patients allow I have been employing sittings of from twenty to sixty minutes, and a current of from twelve to eighteen ampères with gratifying results, the reaction in each case becoming more pronounced, and penetration to the deeper tissues more manifest.

The phenomena of reaction consist of temporary hyperæmia, redness, and vesication, with formation of crust the contents of bleb, the after treatment of which consists in the

application of lint saturated in weak boric lotion. If the latter be too painful a weak calamine or zinc ointment may be substituted till healed.

After completing each sitting the compressor is thoroughly cleansed with spirit and a piece of dry chamois. It is most essential that the current of cold water circulating in the metal jacket be continuous and free from air bubbles, otherwise the back lens is in imminent danger of cracking.

The conditions found unfavourable for the treatment, and upon which most, if not all, workers are unanimous, and upon which special stress is laid at the Finsen Institute, are :—

- a. Involvement of a large extent of surface. As only a small area can be treated daily, the disease while being arrested in one place may continue to spread in another.
- b. Interception of light from any cause—scar tissue, because of its density ; pigmentation ; vascularity.
- c. Anything that prevents that degree of pressure necessary to render the part under treatment anæmic.
- d. Certain positions—neighbourhood of the eye, mucous membranes, &c.

X-Rays as an Addition to the Finsen Light.—In ulcerating cases, where the pressure of the Finsen method could not be borne, the X-rays were employed till healing had occurred sufficiently to allow further treatment by the ultra-violet rays. In all such cases the X-rays are a most valuable addition, but more an addition to, rather than a substitute for, the Finsen light. The tube used was a Cox's record tube, excited by a ten inch coil with platinum break. Exposures of from five to ten minutes daily, or every other day, were made as circumstances demanded, the healthy skin having been protected from the influence of the rays by a paper pulp mask, the outer and inner surfaces of which were covered by a layer of lead foil.

I may mention that the cases subjected to the Finsen method at the City Hospital for Diseases of the Skin were non-selected, the installation there being the first in Ireland ; consequently in the general rush for relief lupus amongst the afflicted truly presented great variety in extent, character, and duration, which varied from three to twenty-eight years.

All had been operated on prior to undergoing this special treatment, some as often as fourteen times, while in the case of others further operative measures had been deemed inadvisable. Under the "light treatment" all the cases steadily improved; some continue to do so still, and with the latter time would appear to be the only essential necessary, while a good percentage of the earlier cases is, I am glad to say, already cured, at least in appearance.

As my observations are founded on personal experience extending over a period of comparatively short duration, my unwillingness to hazard an opinion as to the permanency of cure will be readily understood. With other workers in this field I agree that tubercular disease of the internal organs, while not influencing the healing process in the superficial lesions to any appreciable extent, materially hastens recurrence of the growth in or near the neighbourhood of the scar.

If an expression of my opinion as to permanency of cure were solicited, I should say that the Finsen light in this respect has no superior. In this belief I am strengthened by experience derived from personal examination of many cases at the Finsen Institute, Copenhagen, which were cured, and had remained so, from one to six years, and are still so, I believe. I am further of the opinion that in the treatment of circumscribed superficial lupus the Finsen light has no equal, and, when judiciously applied, ranks among the most brilliant discoveries of modern medical science.

I am hopeful that with increased experience the Finsen Light will, notwithstanding its expense, become more universally adopted amongst the hospitals of this country, and that the results accruing shall serve as an incentive to every worker to still further persevere in perfecting a method of procedure which Finsen himself, while calmly counting the hours to his own release from racking pain, admits is obviously capable of improvement.

Undermentioned are details of four cases, with photographs, selected from a considerable number which I had the honour of bringing before the Medical Section of the Royal Academy of Medicine in Ireland in December, 1902.

These cases have been discharged, but are still kept under supervision.

CASE I.—A girl aged twenty-four ; unmarried ; weaver.

Family History.—Parents both alive and healthy ; four brothers and one sister, all living and healthy.

Personal History.—Always enjoyed good health, until March, 1899, when she got an attack of erysipelas, which lasted three months. In the following August, about two months after recovering from the erysipelas, her nose broke out. After attending



CASE I.—Before treatment.

various doctors, she entered the Cork Union Hospital where the sore was scraped under chloroform, four times. The spread of the disease seems to have quickened into activity, for in about three months after last scraping the entire nose, and greater part of

both cheeks, became involved, as represented in the accompanying photograph, taken immediately before her admission to the light treatment of the City Hospital for Diseases of the Skin.

Condition on Admission, May 8th, 1902.—She presented an extensive yellowish dark incrustation, involving the *alæ nasi*, tip and bridge of nose, the prominence of both cheeks, and greater



CASE I.—After treatment.

part of upper lip. On removing crusts from cheeks, a red, moist ulcerating surface was exposed, which bled easily. The nasal cavity was much encroached upon by ulceration and crust formation; on removal of the latter numerous vegetations could be seen. *Chest examination* presented nothing abnormal. *Kidney*

secretion—Acid; specific gravity 1030; no albumen or sugar. *Microscopic examination* of scrapings gave negative results.

Sittings, Finsen Light.—32 of fifteen minutes, and 24 of one hour's duration, to cheeks.

X-rays to Nose.—38 exposures of ten minutes, the cheeks having been first protected by lead foil.

CASE II.—A girl aged thirty-one; unmarried; dressmaker.

Family History.—Parents both alive and healthy; four sisters, living and healthy; two brothers living, one of whom is suffering from pulmonary tuberculosis. History of tuberculosis on mother's side.

Personal History.—Except for an attack of "gastric," when fifteen years of age, she always enjoyed good health. Some time after the attack mentioned she noticed a small red pimple on left side of face, but did not attach much importance to it until eighteen months or two years later, when she consulted a doctor, who told her she had lupus, and scraped it ten or twelve times. As usual the lupus process, though delayed in its course, was not long in resuming its slow but unceasing activity, until the disease had assumed the character fairly well.

Condition on Admission to City Hospital for Diseases of the Skin, December 6th, 1901.—The disease is distributed over both cheeks, the patch on the right, the larger of the two, being about the size of a five shilling piece. There is destruction of a portion of the alæ nasi; the septum perforated and reduced to a mere stump; both nostrils shrunken; the tip of the nose thickened and infiltrated gave to the face an expressionless appearance. Connecting the patches on both cheeks is a band of ulceration, horse-shoe in shape, involving the greater part of the bridge of the nose. On removing the adherent scales with forceps from patches on cheeks the outline of ulcer became well defined, its border undermined and wavy, the floor irregular and granular. *Chest examination* presented nothing abnormal. *Kidney secretion*—Specific gravity, 1027; acid reaction; no albumen nor sugar. *Microscopic examination*—Several scrapings revealed absence of tubercle bacilli.

Sittings, Finsen Light.—141 of fifteen minutes, and 22 of an hour's duration.

CASE III.—A girl aged twenty-one; unmarried; shop assistant.

Family History.—Father and mother both alive; mother

suffers from chest, and often spat blood; four sisters and one brother, all living and healthy.

Personal History.—Since a child she always suffered from swellings in the neck. About five years ago she had an abscess lanced on right cheek; the doctor while dressing it pricked the right nostril through accident with his scissors; the wound festered, tip of nose became swollen, red, and painful, associated with a sensation of pins and needles in the part. She was admitted to one of the city hospitals in December, 1898, and scraped under chloroform. Between that time and December, 1901, she had four scrapings, at intervals of about six months each, but the ulcer continued to spread. The pain, with the peculiar sensation of pins and needles, persisted.

Condition on Admission to Light Treatment.—On April 7th, 1902, she was admitted to the light treatment of the City Hospital for Diseases of the Skin, presenting a small, well-defined ulcer involving right ala nasi, and extending up right nasal cavity, the mucous membrane of which is swollen, granular, and bleeds easily. There is destruction of free border of right ala nasi. Tip of nose pale blue in colour, much swollen, and infiltrated, with nodules projecting beneath the skin. *Chest examination*—On inspection, slight impairment of movement was noticeable over apex of left lung, with impairment of percussion note over same area; deficiency of vesicular murmur on auscultation, but absence of any crepitation. *Microscopic examination*—Tubercle bacilli were found in some of the scrapings examined. *Kidney secretion*—Acid reaction; specific gravity, 1020; no albumen or sugar.

Sittings, Finsen Light.—68 of fifteen minutes, 9 of one hour's duration.

CASE IV.—A boy aged thirteen.

Family History.—Except for an attack of whooping-cough, chicken-pox, and measles, he has always enjoyed good health. When he was four years of age—about six months after his having had the measles—his mother noticed a little red pimple on the left cheek, which remained unchanged in size for three or four years, when it began to increase slowly. His mother becoming uneasy brought him to one of the city hospitals, in 1895, where she was told the boy had lupus. Between 1895 and 1901 she brought him to four other hospitals, where he remained for periods ranging from three to twelve months each, during which time

he was operated on six times—thrice under chloroform, and thrice without; but as the sore never completely healed, and latterly began to spread, an operation for excising the piece was recommended, to which his parents would not submit.

Condition on Admission to Light Treatment.—On December 6th, 1901, he was admitted to the light treatment of the City



CASE IV.—Before treatment.

Hospital for Diseases of the Skin with a small, nearly circular, ulcer, a little larger than a shilling, situated on left cheek, on a level with the angle of the mouth, and nearly midway between it and the lobe of the left ear. The surface of the ulcer was raised and infiltrated, its edge well-defined, and studded with typical

apple jelly nodules. *Chest examination* revealed nothing abnormal. *Microscopic examination* gave negative results. *Kidney secretion*—Acid reaction; specific gravity, 1022; no sugar or albumen.

Sittings, Finsen Light.—75 of fifteen minutes, and 9 of one hour's duration.



CASE IV.—After treatment.

ART. V.—*Tuberculosis and Consumption.* By EDWARD P. CULVERWELL, M.A., Univ. Dubl.; Fellow of Trinity College, Dublin.*

PULMONARY consumption is a disease of all countries, whether tropical, temperate or Arctic; of all races, whether white or coloured; of all climates, whether moist or dry, hot or cold; of all levels, from that of the Dead Sea to that of the Alps. The degrees of its prevalence do indeed vary greatly with some of these factors, but they follow only one general law—the disease is less prevalent in the more sparsely populated regions.

Consumption is a disease of all historic times. More than three hundred years before Christ, the Greeks knew that in its early stages, at least, it could be cured by wholesome food and perpetual fresh air, but in later times this belief became generally discredited, and medical science in Europe made little or no progress in the cure of consumption before the latter half of the century just closed. Yet it was well known that consumption did sometimes become cured of itself, even in severe cases, because *post-mortem* examinations of persons who died from other diseases not infrequently revealed the fact that, during some earlier part of their lives, they had lost an appreciable portion of the lung, and that the disease had, nevertheless, healed of itself. The fresh air and good food treatment of consumption has been rediscovered many times. A Scotch physician used it with success in 1750; a sanatorium based upon it was opened in England in 1840, but was closed because of the active opposition it excited; for some years following 1850 Dr. Henry MacCormac, of Belfast, carried on an active crusade in its favour. But although the pioneers of the new and tolerably successful treatment of consumption were our own fellow-subjects, it was in Germany that it first gained a firm footing.

In the far more important matter of prevention, however, England for a long time easily maintained her leading position, because she was foremost in sanitary reform. Factory Acts, improvements in sanitation and in the condition and habits of the poorer classes generally, led to a very marked improvement in the public health. This was especially marked in regard to consumption, in which the annual death-rate fell from 3·8 in

* Mr. Culverwell has kindly acceded to the Editor's request, and allowed him to publish this admirable paper in a Medical Journal.

1840 to 1.9 in 1880. Had proper advantage been taken of Koch's discovery of the tubercle bacillus in 1882, the decrease might have been even more rapid since then, but it has in fact been slower, having fallen only to about 1.3 in 1900.

KOCH'S DISCOVERY OF THE TUBERCLE BACILLUS IN 1882.

From 1865 it had been known that consumption was a communicable disease, because in that year Villemin showed that it could be given to animals by inoculating them with the sputum, or coughed up phlegm, of a consumptive.^a This fact, and Pasteur's general discoveries, had made it practically certain that consumption was a germ disease. Koch was the first to succeed among those who endeavoured to isolate the germ, the appearance of which, when magnified about 1,000 times, is that of a somewhat irregular pencil line, about $\frac{1}{8}$ to $\frac{1}{4}$ inch long.

The great value of Koch's discovery is that it has enabled bacteriologists to trace the life-history of the germ, and so to lay down the principles (not very difficult to carry out, if an educated public opinion helped to enforce them) by which the consumptive germ itself could be as completely banished from the country as the germ of leprosy—a disease to the former prevalence of which not only historical records bear witness but even existing names of places, such as Leopardstown, near Dublin, a corruption of Lepers' Town. But while the means which eradicated leprosy were accompanied with great hardship to the leper, modern medicine has shown that the consumptive germ can be banished, not only without undue hardship to the sufferer, but with great benefit to him.

An immediate result of Koch's discovery was that several very intractable diseases previously believed to be allied to consumption were definitely proved to be due to the same germ. They are all included under the general designation of tubercular diseases.^b

^a In an Italian work, published in 1520, it is stated that "the sputum and breath of a consumptive gives off a strong vapour, which causes consumption in others." It took three and a half centuries to re-discover this!

^b This has given rise to a great deal of confusion and uncertainty in the comparison of statistics. Sometimes the death-rate from tubercular diseases as a whole is spoken of, at other times the consumptive death-rate alone. Moreover, the classification in the Registrar-General's returns has been changed from time to time, so that it is often difficult to be sure of strict accuracy in comparing statistics in different periods or countries.

When the tubercular germ lodges in the membranes of the brain, it gives rise to tubercular meningitis, commonly known as water on the brain, or watery inflammation of the brain. In the superficial glands, especially those of the neck, it develops into what is known as scrofula or king's evil. In the glands of the abdomen it produces *tabes mesenterica*, commonly known as consumption of the bowels—a fatal disease, chiefly incidental to childhood. It may attack the skin, producing lupus. Hip disease and many other diseases of the bones and joints are due to it; and in these and other ways it is the cause of a large proportion of the surgical operations in our hospitals.

In banishing the consumptive germ, therefore, these very serious diseases would be banished at the same time.

LIFE-HISTORY OF THE GERM.

When the germ succeeds in effecting a lodgment in the body either of two things may happen: First, it may establish and propagate itself by increasing in length, and then splitting into two, a process which, under favourable circumstances, leads to an extremely rapid increase, resulting in a correspondingly serious disease; or, second, if the part affected be in a vigorous and healthy condition, and the dose of infection be not a very large or a very virulent one, the chances are that the germ will fail to overcome the resistance of the protective cells always present in the human body, and will be very quickly killed.*

Even when the germ has established itself in the tissues

*The results of *post-mortem* examinations show that this fortunate event very frequently happens, and that there are in fact but few past middle age in whose system the tubercle germ has not at some time effected such a lodgment. This shows how vitally interested everyone is in diminishing the general liability to infection, for it is impossible to tell whether any particular person will be among those who succeed in resisting the infection or not. Not only is there the unknown factor of the natural and inherited power of resistance to tubercular infection, but he who, when in vigorous health, has successfully resisted it may succumb when run down. Moreover it has been fully established, not only that a large dose is far more effective than a small one, but that there are very different degrees of vigour in the bacilli. Animals infected with tubercle taken from the lungs of one who has died from a very severe and rapid attack of consumption show correspondingly severe and rapid symptoms, while those similarly infected from mild cases show correspondingly mild symptoms.

it sometimes happens that the protective cells form a wall enclosing the invading germs, so as to prevent their spreading. There may then be no evidence that anything is wrong except perhaps a general lowering of vitality, more or less pronounced. It is impossible to tell how long this quiescent condition may remain, and the final result may be either that the tubercle germs die and so much of the tissue becomes solidified, or that after a time the protective tissue gives way, the germs get free again, and the disease spreads as they multiply.

When the germs continue to multiply within the body, a time comes when the system must expel them, and thus the infection is spread. That is done in different ways. Sometimes a sore opens, and the bacilli are discharged with the pus. But the phlegm coughed up by the consumptive is by far the most important agent in spreading the infecting germs.

So long as the bacilli thus discharged remain surrounded by *wet* masses of phlegm or pus they are not very likely to get into the body of a healthy person whose skin is unbroken. But it is quite different with the minute droplets which are expelled as a very fine spray when a consumptive person coughs. Careful experiments have shown that, if the air is still, such droplets may remain floating about in it for half an hour or more after the cough—just as the very minute drops of water which form a fog remain suspended in the air for a long time, while the larger drops, which we call rain, fall at once. If this invisible tuberculous spray is not quickly dispersed by fresh air entering the room, it may be breathed back into the lungs of the patient, and the germs in it may, perhaps, repeat their previous history, even infecting a different part of the lung, and thus greatly adding to the intensity of the attack; or if it be breathed in a concentrated form by a healthy person, it may infect and ultimately kill him, especially if his lungs be delicate or irritated by dust, as is the case with many factory operatives.

This is one reason of the immense importance of having the freest possible ventilation around a consumptive patient, both for his own sake and that of those who attend on him. Plenty of fresh air not only lessens greatly the chance of infection by mere dilution of the infection—i.e., by reducing

the number of germs entering the lungs with each inhalation, but it also helps to diminish the vitality of, and ultimately to kill, the germs themselves, and, in addition, it effects a distinctly curative effect on the lungs themselves.

As to the bacilli which do not float in the air, but are surrounded by masses of phlegm or of pus, they may ultimately get back into the body by a different process, if they are not destroyed by burning or effective disinfection before they have time to dry. For after the material in which they are enclosed has dried, it will in time get powdery, and then it will become part and parcel of the surrounding dust. When this tuberculous dust is stirred up it may get into the body by being breathed into the lungs, or being swallowed with the food, or, perhaps, through the skin, especially if it be broken, and then a similar round of changes goes on.* The lighter the dust, and the more easily it floats in the air, the more likely it is that the tubercle germs, which stick to the particles of dust, will be breathed into the lungs. Thus the danger from the light dust of infected linen or calico, such as pocket-handkerchiefs, pillow covers and sheets, is proportionately much greater than that from the heavier dust of floors.

As to the life of the germ in this tuberculous dust, it depends upon whether the conditions are sanitary or unsanitary. If it be freely exposed to fresh air and sunlight it dies in two or three days or less; but if allowed to remain in dark and badly-aired places, it lives on in a passive condition for long periods, ready to grow again when by any chance it again gets into the body.

Such is the history of the tubercular germ where the human body alone is concerned. Cattle and other domestic animals also suffer from tuberculous diseases, and there is a strongly-held opinion that man may get the disease from germs which have grown in diseased cattle. Especially it is believed that the milk from tuberculous cows is a very common cause of consumption of the bowels in children—a most serious and fatal disease. Although this opinion has been called in

* It ought to be stated that the mere air breathed out—not coughed out—by a consumptive does not contain tubercle germs, but any expiration, and especially a forcible one, may contain minute droplets of water with tubercle germs in them.

question, and cannot be considered as finally established, yet it would be very undesirable to relax the precautions dependent on it, so long as there is a probability of its truth.*

CONSUMPTION, THOUGH IT USUALLY "RUNS IN FAMILIES," IS
HARDLY EVER HEREDITARY.

It is now generally recognised that the number of cases in which the tubercle germ makes its way from the parent to the offspring before birth is so small as to be insignificant compared with those infected from external sources. It is nevertheless true that the children of consumptive parents are far more often consumptive, or afflicted with other tuberculous diseases, than the children of healthy parents; for, unless very strict precautions are observed, they are exposed to more frequent and more concentrated doses of infection than those whose near relatives are not consumptive. If they were guarded from infection they would not become tuberculous.

Statistics in German orphan houses have shown that the infant children of parents who have died of consumption grow up without more liability to the disease than other children. Yet when one sees member after member of a family struck down by tuberculous disease it seems hard, at first sight, to accept the medical conviction that the disease is not hereditary. A few examples taken from the exhaustive Report of the Edinburgh Public Health Committee are more convincing than any mere theorising:—

In 1896 a young lady of twenty-six fell ill of consumptive blood-spitting. The father had died of consumption in 1879; the mother of tuberculous inflammation of the brain in 1882; two adult sisters had died of consumption in 1882 and 1884; the third sister, and four of the five brothers, fell ill of consumption, with blood-spitting, in the years 1883, 1885, 1889, and 1890. Except two children, who had died in infancy of other diseases, and one son who escaped, the parents and all the offspring were thus tuberculous. Some years ago anyone would have said that this was a case either of inherited consumption or of conspicuous inherited predisposition. But, when examined, it is found that up to 1870, when the father became infected, no member of the family had ever shown symptoms of tubercle. The grandparents on both sides were healthy; the father had four brothers and two sisters, who had between them twenty-eight children; the mother

* It is, however, probable that some of the money now expended when diseased cattle are condemned might be more profitably spent in other modes of combating tuberculosis.

had four sisters, with twenty-four children. *None of these relatives ever contracted tubercle disease.* When to that fact it is added that the son who did not get the disease left home in 1880, one year after the father's death, it becomes clear that the case was one of the infection of a healthy family, living together continuously as they did in one house, due to the bacilli originally generated in the father's system, he having been infected from some unknown source.

The history of a particular dwelling in a large Artisans' Dwellings Building was traced, because it seemed a nest of consumption. From 1865, when it was built, to 1874 it was inhabited by three families, all healthy. In 1874 a family, in which the mother was already consumptive, entered it. The woman died in the house, and after a year's tenancy the family left. The next occupants were a family of seven persons, all healthy. They left after a year's occupation, and at a subsequent date it was found that the father, mother, and one son died of consumption of the lungs, and a fine boy of consumption of the bowels. The next family were healthy on arrival. A child born in the house died of tuberculous inflammation of the brain; later the father died of consumption, and another child of brain inflammation, another contracted hip disease, a sister became extremely scrofulous, and the mother became consumptive. A fourth family came in after this, all healthy; the mother became consumptive, and two children died of tubercular inflammation of the brain.

During all this period the dwelling in question was never vacant; each new tenant entered while it was still warm from the previous one, and it was never painted or cleaned out. It is stated in the same large house that there were many other dwellings in which this neglect did not occur, and that there was no other similar instance of tubercular disease clinging to the apartments.

Koch and numerous other German observers have shown that the offspring of animals infected by tubercle develop as vigorously as those of healthy animals if they are shielded from infection.

Bernheim made a few very interesting observations. Here is one:—Three consumptive mothers gave birth to twins; in each case one twin was nursed in the parental house by a healthy wet nurse, and one sent elsewhere. The three twins kept at home caught the infection and died, as did also two of the healthy wet nurses. The three twins who were separated from their mothers and put in healthy surroundings developed vigorously, and remained free from tuberculosis.

SOME WAYS IN WHICH THE INFECTION IS SPREAD.

The examples just given indicate one of the most serious sources of danger—one which, though it affects the poorer classes more than others, is by no means confined to them. Cases of fatal infection are known to have occurred from occupying infected rooms in lodgings where the visitor has gone in search of health. Until the sanitary authority has powers of compulsory disinfection of such premises, or until

an effective public opinion brings sufficient pressure to bear, this terrible condition of things will constantly recur.

Another very serious danger to which the poor are exposed is that arising from the purchase, at second hand, of the furniture or clothes of a consumptive who has never known, or cared to take, any precautions. At present there is no restriction on this sale of deadly poisons. The unfortunate couple who, setting up for themselves, cannot afford to buy new furniture, must buy it in a lottery where the forfeit is a deadly disease to themselves and their children. The State, though it frames elaborate laws to regulate the sale of poisonous drugs, permits without interference this constant sale of a far more devastating organic poison. This sale will continue until either public opinion represses it—probably a distant contingency—or until the sanitary authority is in a position to exercise compulsory powers of disinfection.

The life-history of the germ shows us how the infection must be spread ; but consumption being a slow, chronic disease, with no fixed period of incubation, one cannot usually fix the date and occasion of the infection in any particular case. Indeed, in most cases of serious disease, it is probably a kind of cumulative infection—a little added from time to time until the protective action of the cells is overcome. There are, however, a number of cases on record in which the evidence seems clear enough.

A robust man of 40 inhaled a dose of tuberculous spray intended for experiments on dogs. He died from acute consumption 14 weeks afterwards. There have been other cases of artificial infection of bacteriological experimenters.

Accidental inoculation of the skin has occurred in different ways—in *post-mortem* examinations of men and animals, by the prick of a morphin syringe, by a scratch from a broken glass spittoon used by a consumptive. In most of the cases it has remained localised, and in some of them it has been cured by timely excision of the affected parts. Similar cases have occurred where a consumptive has sucked an incised wound to stop the bleeding.

The infection in regard to 10 infants attended by her was traced to a midwife far gone in consumption, whose improper habit it was to blow down the lungs of newly born infants.

The infection is, however, known to be usually due to the tuberculous dust which comes from the sputum left about by careless consumptives, or to the fine tuberculous spray which they emit when coughing. As a full supply of air necessarily scatters the germs, even if it should not have time to kill them, it is in confined or close and covered places that the infection of a healthy person by a consumptive is most likely to occur, either by breathing in the germs or swallowing them. The schoolboy, for instance, who drops his apple on the floor of a railway carriage and eats it after merely brushing off the visible dust, may some day swallow a dose of tuberculous poison and develop consumption of the bowels or of some other part.

THE PREVENTION OF TUBERCULOSIS.

The principles lie in a nutshell. The tubercle germ does not multiply outside the body (except, of course, under the very special circumstances in which bacteriologists can cultivate it), nor does it usually retain its vitality very long when expelled from the body. Every case, therefore, of human infection is a case of one human being getting into his or her body a number of bacilli which, not very long before, had been in the body of someone else, who had not taken proper precautions to prevent their infecting other people after he had himself expelled them from his own body.*

If, therefore, consumptive persons always coughed into something which caught the germs given off, and if all the infected material were burned or disinfected before it dried and got scattered abroad as dust, and if those having tuberculous sores took similar precautions as to the discharge from them, there would be no fresh germs scattered about to infect other people, or, indeed, to add to the intensity of the patient's own symptoms. If, in addition, all the dirty and ill-aired places which now contain germs on the wall-paper and the floor, in the dust of and sticking to the drapery of the furniture and bedding, were to be disinfected, the existing sources of infection would be destroyed. If great care were exercised

* This does not, of course, refer to bovine infection. But those who consider it as an effective cause rank it far below human infection in regard to the number of cases to which it gives rise.

in both ways, consumption would soon become almost as rare as leprosy.

The practical rules for carrying out the necessary precautions are given in the pamphlets of the Dublin Branch of the National Association for the Prevention of Tuberculosis, and in other leaflets dealing with the matter, and there is, or ought to be, a poster with directions hanging up in every dispensary in Ireland.*

The address of the Dublin Branch of the Association is The Royal College of Physicians, Kildare-street, and a request to the Secretary will secure a prompt supply of pamphlets or leaflets with directions. It may be mentioned here that the small pamphlet "*Consumption and its Prevention*," originally written for managers and teachers of National Schools, is far the most complete and careful of the pamphlets now issued by the Association in Dublin.

Reference ought also to be made to a remarkable and excellent little work on consumption, written specially for Roman Catholics, by Father Martin Healy, of Ballinrobe, and published by the Catholic Truth Society, price 1d.

AUXILIARY MEANS OF PREVENTION.

Accepting, however, the fact that we are still a long way from the time when consumptive persons and their attendants

* What has been said about the life-history of the germ may suggest some additional precautions. For instance, bearing in mind the tuberculous spray in coughing, and the dangerous character of the light dust from linen or calico, it is evident that, even where a spittoon is used, a good deal of tuberculous dust must rise from the pillow case and upper sheet, and that the shaking of them in making the bed is a matter requiring care. To reduce this danger as far as possible a removable slip of linen might be pinned over the pillow and carefully removed each morning (or for bed-ridden patients twice a day), disinfected by boiling, and put on again in its turn. As it is impossible to completely prevent tuberculous dust from rising, safety is to be sought in diluting it as far as possible with fresh air.

There is a point not always made clear in the printed directions—viz., that in disinfecting by boiling, it is not sufficient to dip the articles into boiling water. That may be better than nothing; but disinfection is not to be considered complete unless they have been boiled for from 15 to 20 minutes. It may be added that for fabrics and vessels this is the safest of all methods of disinfection in all cases of infectious diseases. Boiling from 15 to 20 minutes kills all harmful germs. When articles which may be infected with tubercular discharges are sent to the wash, they should be boiled *before* washing, otherwise the washerwoman may become infected, especially if her skin be cut or broken. Such cases have been traced.

will fully carry out those precautions which alone can prevent their being a fatal source of danger to others, there remains the other field of prevention which has been so successful in England. It has been stated that the life of the germ when expelled from the body is long in unsanitary, but short in sanitary, surroundings. Hence, even with the same number of infective germs scattered about by tuberculous people, the chance of infection is diminished as the sanitation is improved. But in addition to this numerical consequence, the resistance to infection of a person living under conditions generally healthful is far greater than that of a person living in unsanitary surroundings.

Plenty of fresh air, sunlight, wholesome (not necessarily expensive) food, and temperance in regard to alcohol—these are the conditions of life which render a person unlikely to succumb to infection of any kind, and especially to the infection of consumption. And, although no amount of overcrowding or other unsanitary conditions can create consumption, any more than they can create leprosy, yet, so long as there is any tuberculous matter about, it will find a ready prey in those who are subject to unsanitary conditions in general. There are also special trades in which the liability to consumption is very great, as those where the chemical or mechanical properties of the dust given off are injurious to the lungs, or where the stooping position is unhealthy for the chest. In these cases especial care ought to be taken to prevent tuberculous dust in the factories or workshops.

When children are growing up, all measures which tend to improve the general health and to turn them out strong men and women are most valuable in lessening the risk of subsequent tubercular disease. In especial the habit of sleeping with the window open, and those exercises which tend to develop the chest, are effective in preventing consumption. On the other hand, children who are accustomed to breathe vitiated air, and whose chests are contracted by constant sitting in cramped positions, are likely to offer but small resistance to the infection.

THE MEASURES ADVOCATED ARE REALLY EFFECTIVE.

In England the auxiliary method of general sanitation

proved wonderfully effective, reducing the annual consumptive death-rate from 38 per 10,000 in 1840 to 19 in 1880, and it is now about 13 per 10,000. It is to Germany, however; that we must look for the best evidence of the success of the modern methods, because it is in Germany that they have had the best trial, owing to the high average of education and the readiness of the people to adopt official regulations, aided, perhaps, by a national pride in German discoveries. Between 1882 and 1900 the annual death-rate per 10,000 from all the tuberculous diseases fell from 31 to 21 in Prussia, as against a fall from 24 to 19 in England in the same period.

The German Army, however, supplies the best example, on a large scale, of what may be done. From 1884 the German Army surgeons and authorities took full advantage of the bacteriological discoveries of Koch and others, and the tubercular death-rate per 10,000 fell from 6·3 in 1884 to 2·3 in 1897.

The German insurance companies have just begun to start sanatoria for the cure of consumptives as a financial speculation. They consider that to catch a man as soon as possible after consumption has declared itself, and spend money in curing him, is cheaper than to pay the lump sum insured on his premature death.

THE HOME CURE OF CONSUMPTION.

Until the bacteriologists succeed in discovering an anti-tubercular serum, the case of the consumptive who cannot go to a sanatorium for treatment will be regarded by many as almost hopeless, for no known drugs will cure him. Yet, as has been pointed out, an appreciable number of consumptive persons have become cured of themselves, even without any treatment at all. In these cases we may be assured that the sufferers led healthy out-of-door lives. There is indeed hope for the consumptive who will resolutely and in all weathers keep his window open day and night,* especially if he can get plenty of wholesome food, with, perhaps, cod-liver oil and any tonics or other treatment which may be prescribed by the

* The present treatment in the Newcastle Sanatoria Hospital for Consumption, and in many if not all others, includes putting the patient's bed in the draught between the window and the door, and keeping both open regardless of weather.

doctor. If this method be adopted in the early stages of the disease, the prospects of recovery are very encouraging.

But if the treatment be not undertaken until a late stage of the disease, the home cure becomes difficult, and in practice almost hopeless, while even in the best sanatorium the probability of recovery is but small. It is therefore of the greatest importance that in every case of a persistent cold and cough the medical attendant should be consulted as early as possible, and a sample of the sputum sent for bacteriological examination, so that if the case be one of incipient consumption, appropriate treatment may be given at once. This is the more imperative, because the common idea of the treatment for a cough is to stop the ventilation, so as to "keep out the draught," and this is the worst possible treatment for the consumptive, and the most dangerous possible for those with him.

But in consumption, not only is prevention better than cure—it is far simpler, far easier, and far more likely to be successful.

THE CONDITION OF IRELAND.

It is with a feeling of sorrow and shame that one turns from the encouraging progress of England and Germany to the unhappy retrogression of our own country. In Ireland, alone among western countries, the tuberculous death-rate has been steadily rising. In the decade, 1870 to 1880, the average death-rate per 10,000 was 26; in 1880-90, 27; and in 1890-1900, 28, which is its present figure (1903). No doubt, some portion of this may be accounted for by the fact that emigration deprives us of a number of the most vigorous adults, but in the case of consumption this argument applies least of all, for it is precisely among the young of adult years that consumption is most rife. Half the total deaths in all Ireland of those between 15 and 35 years of age are caused by consumption, and much more than half by all the tuberculous diseases together. Half of all the deaths between 15 and 45 are caused by the tuberculous diseases. Thus the death-rate is no guide at all to the misery due to our neglect of precautions against this terrible disease. For it is the adult, the wage-earner, the man who has incurred the responsi-

bilities of life, the man to whom a family looks for support, or the mother on whose care the welfare of young children depends, who are its most frequent victims. These are taken, and those dependent on them are too often left without the means of support.

WHAT PRACTICAL MEASURES CAN BE TAKEN ?

The first thing is to create, especially among the poorer classes, a healthy public opinion.* The experts may know how thousands of lives may be saved, but it is useless to hope that the sick will adopt any precautions much in advance of what the public opinion of their neighbours approves or demands.

The general Public Health Acts, although not specially directed towards consumption, confer on the Local Authorities all over the Kingdom very useful powers, which they seldom exercise. If the value of these powers were appreciated by the people—if the Public Health Authority were looked on as a beneficent agency, whose assistance was to be welcomed, and if, on the other hand, that authority took the full advantage of its opportunities—the result would be of incalculable benefit to the consumptive, to those living with him, and to the community generally. But we are very far from this happy state. Even in the suburbs of Dublin some of the Local Authorities have as yet (1903) failed to make the very necessary provision of free disinfection—necessary, because it is almost impossible for the poor to carry it out for themselves, while even the well-to-do are often just as helpless. And, on the other hand, even where free disinfection is provided, as in Dublin City, the poorer people are so ignorant of its efficiency, or so much afraid of the trouble it involves and of the effect on their neighbours, that they generally

* Even educated British public opinion has been strangely backward. Upwards of twenty years has elapsed since Koch's discovery, yet Parliament has taken no steps whatever to secure that it should be utilised, although the preventable loss of life in each year in Great Britain and Ireland far exceeds that of the whole three years of the South African war. It is, too, a striking contrast, that while great efforts are rightly being made to discover the cause and the means of prevention of cancer, and, if possible, to find a cure for it, the knowledge ready to hand in regard to the far more devastating disease of consumption is still, to a large extent, unutilised.

refuse it, even when offered.^a They will attend wakes, sleep, dwell, or visit, in places teeming with infection, without a moment's misgiving, but as soon as ever the officer has been to disinfect a house or room, they shun it as if he had brought the plague instead of banishing it. Consequently, there are many, even among the more intelligent, who will keep the thing quiet, and run all risks, rather than have the place openly disinfected and be then shunned by their neighbours.

In regard to such matters as these, ministers of religion, district visitors, employers of labour, and many others, can do much to impress on those with whom they are brought in contact the two points of paramount importance—

1st. The necessity that the consumptive and those connected with him shall take sensible precautions.

2nd. The foolishness of being afraid of the disease after the proper precautions have been taken.^b

And, on the other hand, it is equally necessary to bring pressure to bear on the Representatives on the County Councils to provide measures of free disinfection in a form which will be at once effective and acceptable to the people. If the articles disinfected are injured or seriously decreased in value the poor will not co-operate with the sanitary authority.

The County Councils also possess other powers of a very wide character. They can, for instance, make spitting in public places a punishable offence, a power which the County Council of Glamorganshire has already exercised in regard to *covered* places. Such regulations are of the greatest value if the public generally assist in seeing that they are carried out. They are worse than useless if public opinion will not tolerate their enforcement.

They also have power to establish, as a charge on the rates, sanatoria for the reception of consumptive patients, at all events in cases where the patients are a danger to the public health.

^a In Dublin when a certificate of a death from consumption reaches the Registrar-General of Deaths, he sends a notice to the Public Health Department, which sends an officer to explain the advantages of disinfection, and to offer to do it without charge. It is stated (1902) that in three-fourths of these cases the offer is refused.

The nurses in a consumptive hospital hardly ever get consumption because proper precautions are taken.

They could also, under their present powers, undertake, free of charge, the bacteriological examination of patients' sputum when sent to them by the medical attendant. This is certainly a power which they ought to exercise, and it might be so utilised as to form the basis of a system of voluntary notification if compulsory notification be not adopted. The doctor, when sending the sputum for examination, might either request the Public Health Authority to send their official to explain and assist in the necessary measures of precaution, if the case turned out to be one of consumption, or he might say that he preferred to be himself responsible for seeing that those measures were carried out.

No expenditure of public money is so necessary as this—a small amount would establish and maintain a bacteriological laboratory, and the benefit would be immense and immediate. Not even in the City of Dublin has such a laboratory been provided by the Public Health Authority (1903).

No disease can be efficiently dealt with unless the Public Health Authority can intervene to see that proper precautions are taken when the medical attendant is not himself prepared to undertake that responsibility. This it can do only if it is informed of the cases of disease as they occur. Hence, either there must be an effective public opinion in favour of seeking the assistance of that authority, or else there must be a system of compulsory notification. The present law respecting notification was enacted solely with a view to acute infectious fevers, such as smallpox or scarlatina. If consumption were made a notifiable disease, some hold that every consumptive would be liable to severe penalties if he appeared in public, and wage-earning would be stopped if the powers were enforced. Thus, were the Act in full operation, provision would have to be made for the forty thousand tuberculous people in Ireland and those dependent on them, which is at present out of the question. It is urged, however, that the powers might nevertheless be entrusted to the Public Health Authority, in the assurance that they would not be unreasonably used. But the Local Government Board has so far steadily refused to allow consumption to be made a notifiable disease under the present Act.

There are, however, wide differences of opinion, not only as to the advisableness of putting the present Act into operation,

but even as to any system of compulsory notification, and it is not consistent with the object of this paper to take sides on any question where well-informed opinion is still undecided. But there can hardly be any difference of opinion as to the necessity of giving the Public Health Authority powers of compulsory disinfection where its assistance is invoked by anyone interested. And it is clear that if no system of compulsory notification be adopted, it is all the more necessary that a strong public opinion shall be brought to bear, so that the medical attendant shall have the full sanction and approval of the public in using all his influence to insist on proper measures of precaution and of disinfection.

Whatever differences there may be as to the most suitable administrative measures, there is no doubt of the great interest recently awakened throughout the country, or that the prospect of educating the people on the matter is now more hopeful than ever. The National Board of Education is assisting by directing the attention of all the National School teachers to the matter, and in many ways public attention is being directed to this, the most important of all sanitary reforms.

Economy, self-preservation, and Christian sympathy, all supply the most imperative reasons for reform—reform which has been delayed far too long already, and must be further delayed in proportion as individual effort does not assist.

Economy—because in Ireland alone upwards of 12,000 people die annually of tuberculosis, most of them in the early prime of life. Assuming that on an average each of these is worth only 5s. a week to the community, and would live for ten years longer if there were no tubercular germ in Ireland, then each death is a loss of over £130, and the total loss is 12,000 times this, or £1,560,000 a year.

Self-preservation—because the chance of dying between 25 and 35 (not to speak of other ages) would be almost halved if the consumptive germ were banished from Ireland.

Christian sympathy—because we ought not to be callous to the misery and sorrow which must each year accompany the deaths of 12,000 people, for the most part with others dependent on them or looking to them for assistance in the near future, especially when each death usually means a sad, long, and hopeless illness, too often involving other members of the family in the same unhappy fate.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Nothnagel's Encyclopædia of Practical Medicine. English Edition. Vol. V. *Diseases of the Liver, Pancreas, and Suprarenal Capsules.* By LEOPOLD OSER, M.D., Professor of Internal Medicine, University of Vienna; HEINRICH QUINCKE, M.D., Professor of the Practice of Medicine, University of Kiel; EDMUND NEUSSER, M.D., Professor of Internal Medicine, University of Vienna; G. HOPPE-SEYLER, M.D., Professor of Internal Medicine, University of Kiel. Edited, with Additions, by REGINALD H. FITZ, M.D., Hersey Professor of the Theory and Practice of Physic, Harvard University; and FREDERICK A. PACKARD, M.D., late Physician to the Pennsylvania Hospital, and to the Children's Hospital, Philadelphia. 8vo. Pp. 918. Vol. VI. *Diseases of the Stomach.* By FRANZ RIEGEL, Professor of Clinical Medicine in the University of Giessen. Edited, with Additions, by CHARLES G. STOCKTON, M.D., Professor of Medicine in the University of Buffalo. 8vo. Pp. 835. Authorised Translation from the German, under the Editorial Supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania. 1903. Philadelphia, New York, London: W. B. Saunders and Company.

Two further instalments of Nothnagel's Encyclopædia of Practical Medicine have appeared simultaneously. The ponderous tomes which lie before us are occupied with diseases of the stomach, liver, pancreas, and suprarenal capsules. As we gaze upon them the thought arises: Is the advantage which it is possible for a busy physician to derive from a close study of such exhaustive monographs commensurate with the toil—mental, intellectual, and bodily—which has been spent upon their production? Treatises so full in detail must always find their greatest usefulness in being works of

reference. To play their part as such they must be furnished with a full table of contents, a copious index, and an international bibliography. The present volumes fulfil these conditions, and are so far, therefore, successful.

In glancing through the bibliographical references one is struck by their essentially German character. Comparatively few British, American, French, Italian, and Belgian entries appear—*rari natantes in gurgite vasto*. Of course we know how untiring in research and in literature is the German School of Medicine, yet we cannot think that full justice has been done to workers in the other countries we have named in this matter of bibliography. Oser's article on pancreatic diseases may, perhaps, be exempted from this criticism.

The fifth volume of the English—or shall we say "American?"—edition of Nothnagel's *Practice of Medicine* is composed of three sections. Each constitutes a monograph. The first, on Diseases of the Pancreas, by Dr. L. Oser, of Vienna; the second, on Diseases of the Suprarenal Capsules, by Dr. E. Neusser, of the same famous seat of medical learning and research; the third and longest, on Diseases of the Liver, by Dr. H. Quincke and Dr. G. Hoppe-Seyler, both of the University of Kiel. The editor of the English translation—Dr. Reginald H. Fitz, of Harvard University—expresses his indebtedness to the recent treatises on the pancreas by Mayo Robson and Körte. He also points out that the views put forward by Opie and others, as to the possible bearing of the islands of Langerhans on the function and diseases of the pancreas, did not appear till after the German edition of Oser's work had been published. The additions made to the section on diseases of the suprarenal capsules, which seem especially noteworthy to Dr. Fitz, are the investigations on the active principles of suprarenal extract, by Abel and Crawford, von Fürth, Takamine, and others, and the discoveries concerning the therapeutic properties of suprarenal extract.

A shadow hangs over the section on Diseases of the Liver, for the untimely death of the editor, Dr. Frederick Packard, took place while the work was going through the press. In the "Editor's Preface," Dr. Alfred Stengel, the editor-in-

chief of the English version of Nothnagel's Encyclopædia, pays a fitting and sympathetic tribute to the memory of his colleague. The monograph itself is, of course, magnificent; yet we confess that it does not appeal to us like Murchison's "Clinical Lectures on Diseases of the Liver"—a work which may well be termed *κτῆμα ἐς αἰὲλ.*

Professor Riegel's great work is a masterpiece. It is divided into two parts. The first is concerned with the general diagnosis and treatment of diseases of the stomach; the second deals with the special diagnosis and treatment of those diseases. The general diagnosis is shown to be based on three things—the *anamnesis*, or history of the case, physical methods of examination of the stomach, and examination—macroscopic, chemical, and microscopic—of the stomach contents. The general treatment falls under the headings—diet, drugs (including the digestive ferments and mineral waters), physical methods, and surgical measures.

The section on diet (pages 177–222) is very full. The author in sequence discusses the quality of the diet according to the different diseases of the stomach; the quantity of food which should be taken, including a summary of the most important articles of diet; general rules for stomach cases before and after eating; methods of feeding the patient, and at the same time partially or completely sparing the stomach; artificial foods, including peptones and albumose; rectal alimentation and the introduction of fluids by the rectum; subcutaneous feeding, and the employment of alcohol, tea, coffee, and tobacco in stomach affections. At page 196 the editor adds a paragraph to the effect that, according to American experience, veal is not so readily digested as beef. This observation we can substantiate by our own experience. We also agree with Dr. Stockton when he adds: "While veal is very indigestible with many, it occasionally is well tolerated and with some appears to be easily digested." To our mind the question is largely one of cooking. In a footnote on page 198 the curious expression occurs—"Procentic Composition of the Food of Man." Surely the German phrase "*procentische Zusammensetzung*" should be rendered "percentage composition"? In the list of foods suitable for a feeble digestion no mention is made of eggwater (the

eau albumineuse of the French), which is certainly valuable and easily borne by the most delicate stomach.

Riegel's views on the employment of alcohol, coffee, and tea in diseases of the stomach are sound. They may be summed up in his own words as follows:—"In general we may say that in diseases of the stomach we can get along very well without alcohol. It will never happen that the disease itself calls for the administration of coffee or tea"—"coffee and tea possess no nutritive value, and when employed at all they are, as a rule, given for their stimulating effect." The author speaks highly of hydrochloric acid given before meals as a stomachic, but he thinks the efficacy of the drug as in subacidity of the stomach contents and as a gastric disinfectant is not established. He also discredits condurango as a remedy for carcinoma *gastri*, although he looks upon the drug as possessing much value as a stomachic. The bark has been employed for many years among the aborigines of Ecuador as a popular remedy for carcinoma and other chronic gastric affections. Dr. Riegel refrains from expressing any opinion as to the value of another very popular stomachic that has been introduced of late years—namely, orexin (*i.e.*, the appetiser), a synthetic product which rejoices in the scientific name of "phenyldihydrochinazolin hydrochlorate."

The digestive ferments are dismissed in some four pages. The administration of pepsin in cases of stomach disease is rarely indicated. Papain and papayotin are very expensive. Pancreatin seems efficient, and has been employed in many cases with good results. Its administration is particularly indicated in those cases in which the secretion of gastric juice is more or less reduced. Riegel has had no experience of ptyalin in cases of hyperacidity and hypersecretion. Saliva is not absent in these cases, but its action is interfered with by the excessive acidity of the stomach contents. The author wisely adds: "Cases of this kind should, at all events, be advised to chew their food carefully and for a long time" (page 243).

Speaking of alkalis in stomach affections, Dr. Riegel has never seen any untoward effects from their prolonged administration. They should never be administered before or during a meal, but always a short time after a meal—in each instance

a little before the time at which the distress of the patient is usually greatest. He is in the habit of administering a mixture of bicarbonate of sodium and "magnesia usta" (magnesium oxide) in equal parts. In private practice a little of the ammonio-magnesian phosphate may be added. The fact that this salt is more expensive is not so important in private practice. The dose of this mixture of alkaline salts varies in each case according to the degree of hyperacidity and the amount of food eaten at each meal. As a rule, half to one teaspoonful is sufficient. In some cases it is well to repeat the same dose, or half this dose, after a little time. The author never employs alkalis in order to stimulate gastric secretion. He mentions with approval the substitution of Carlsbad salts for alkalis and in the same diseases, and recommends Wolff's formula for an artificial Carlsbad salt—namely, 30 grammes of sodium sulphate, 5 gm. of potassium sulphate, 30 gm. of sodium chloride, 25 gm. of sodium carbonate, and 10 gm. of the baborate of sodium. This differs somewhat from the "Sal Carolinum factitium" of the German and Japanese pharmacopœias, the composition of which, as given by Martindale and Westcott is—dried sodium sulphate, 44; potassium sulphate, 2; sodium chloride, 18; sodium bicarbonate, 36—all in fine powder. Of this the dose is from 20 to 60 grains in warm water, while 53 grains in one pint of water is similar to Carlsbad water.

The administration of Carlsbad and other similar waters is recommended under the following conditions:—

1. In round gastric ulcer, provided the stomach is not too atonic.

2. In so-called acid catarrh of the stomach, and also in all forms of dyspepsia with pronounced hyperacidity, provided the dyspepsia is not of a purely nervous character.

3. In dyspepsia in which the peptic power of the stomach is only relatively reduced. In cases of this kind the administration of Carlsbad waters should be carefully supervised.

4. In mild cases of atony.

The employment of these waters is contra-indicated in carcinoma, whether complicated by atony or not; in all severe cases of atony and ectasy; and in all cases of dyspepsia in which the production of hydrochloric acid is much reduced.

A Carlsbad cure is not of great value in the majority of cases of nervous dyspepsia.

The physical methods of treatment described by the author are lavage of the stomach; the stomach-douche (die innere Magendusche), suggested by Malbranc in 1878, and first employed by Kussmaul in a case of severe gastralgia; massage; electric treatment; hydrotherapy and orthopædics; and finally, surgical interference. On this last Dr. Riegel expresses himself dogmatically: "In order to proceed surgically a precise diagnosis must be made." "Diseases of the stomach are treated by surgical methods, either in order to bring about a radical cure of some disease of the organ that cannot be cured in any other way, or in order to remove certain dangerous or very troublesome symptoms. It is self-evident that operative interference for either purpose is permissible only in those cases where internal therapy is unable to accomplish anything" (page 275).

Space does not permit us to notice at length the second part of this fine work. Suffice it to say that the author has brought to bear upon his subject—the special diagnosis and treatment of diseases of the stomach—a vast store of ripe clinical experience and literary research.

The Diseases of Infancy and Childhood: for the Use of Students and Practitioners of Medicine. By L. EMMETT HOLT, M.D., LL.D.; Professor of Diseases of Children, Columbia University, New York, &c., &c. With 225 Illustrations. Second Edition. London: Henry Kimpton. 1903.

THIS well-known work on diseases of children issues now in a much-improved form. Dr. Holt has bestowed a great amount of labour on the production of this edition, and the result is a most valuable treatise on the subject. It stands deservedly high as a comprehensive text-book, and holds its own place secure amongst its numerous competitors in this branch of medicine. Beyond the undoubted authority of Professor Holt this volume has special interests. One of its chief features is the prominence with which pathology is put before the reader, and thus the surest foundation is built

beneath Dr. Holt's work. Another element we admire is the original work it contains. There is far less copied from other works in this volume than one usually sees. These two points deserve particular mention, and commend the book as an interesting and scientific portraiture of diseases of children. In a volume of this size one can, of course, find some faults, but they are not many. We can recommend the volume as a sound treatise on these diseases.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by SIR JOHN BATTY TUKE, M.D., and D. NOËL PATON, M.D. Vol. VIII. Edinburgh: Oliver & Boyd. 1903.

THIS volume, the largest and probably the most valuable of the series to which it belongs, contains papers giving the results of work done in the laboratory, chiefly in 1900 and 1901. There are a few papers from 1899, while one important paper is not included. The quantity and quality of the works here published reflect the highest credit on all concerned, and amply justify the statement of the editors "that the laboratory continues to fulfil the purpose for which it was instituted, and that those engaged in medical research find in it facilities for scientific work."

The papers included in this volume are twenty-four in number—fourteen physiological, nine pathological, and one hygienic. Most of them have been already published in different journals, and are here given *in extenso*, while a few are given only in abstract. Our space will not permit us even to name all these papers, but we may say that the standard of excellence which they reach is very high, and that the volume is a noble record of work.

Perhaps the thing which first strikes the reader in looking over the table of contents is the large number of the papers on metabolism which are here presented.

The first is "A Study of the Diet of the Labouring Classes in Edinburgh," carried out under the auspices of the Town Council of the City of Edinburgh, by D. Noël Paton, J. Crawford Dunlop, and Elsie M. Inglis. This most valuable and laborious work, which runs to 104 pages, gives a rather

depressing view of the condition of the Edinburgh poor, their food contrasting unfavourably as a source of energy, and still more unfavourably as a source of proteid, with the diet of the inmates of poor-houses, prisons, and pauper lunatic asylums. And, although much of what was elicited was known before, it is true that "knowledge based upon mere opinion, and not upon actual facts, is no true knowledge; and we are strongly of opinion that before any suggestions of remedial measures are advanced, definite information and evidence must be forthcoming."

From their own experiments, and those of other writers, the authors conclude that an average man of good muscular vigour requires daily :—

			Calories.
Proteids	-	130 grams, yielding in the body	533
Carbohydrates	500	" " "	2,050
Fats	100	" " "	930
			<hr/> 3,513

"Taking Atwater's recent figures of the proportion of a mixed diet, digested, absorbed and made available, this would yield about 3,300 calories of energy." The proteids must not fall much below 130 grams, but the proportion of fats to carbohydrates may be varied to a certain extent.

For the purpose of this research the labouring classes are divided into three groups:—(1) The well-to-do, who are free of anxiety about the necessities of life; (2) those with permanent employment, earning about 22 shillings per week; and (3) those not in permanent employment, and earning less than 20 shillings a week.

The household economy of several examples of each of these classes is studied, and the quantity, cost, and nutritive value of their dietary determined. In some cases good management was apparent, but in too many cases great ignorance and carelessness were manifest.

To improve the dietary of the labouring classes the following principles should be instilled into them :—

That a diet of tea and bread and butter is bad. This is called the lazy diet, as it does not call for any effort of cooking. This diet, deficient in proteids, can be corrected expensively

by addition of eggs or meat, or cheaply by free use of oatmeal and milk, or of peas and beans, but this will involve labour spent on the cooking of the food. A fairly good diet can be procured for four pence a day, while the average price paid is about seven pence. It is suggested that tables should be prepared and circulated, giving instructions as to the nutritive value as flesh-formers and work-producers of the food, which can be got for a penny. The success which would attend the establishment of cooking shops is considered doubtful.

Dr. James Crawford Dunlop contributes a valuable paper on "The Food Requirements of Varying Labour," founded on his observations of prison dietaries. He concludes that all average men doing the same amount of work require the same amount of food, that individual variation is very small, and that there does exist a common food requirement. But it is impossible to fix a proper diet for labour from standards, because we cannot estimate the severity of the labour. The only way of satisfactorily adjusting diets is by direct observation.

Dr. Walter Chapman's work "On the Placenta of the Rabbit, with Special Reference to the Presence of Glycogen, Fat and Iron," is something more than a paper. It comprises 261 pages of letterpress, and is illustrated by 186 beautifully executed figures, many of them in colours. It is a most valuable contribution to placental anatomy and physiology.

Drs. Ford Robertson and J. S. Fowler give, as the result of the experiments of the late Dr. Elder, that "the whole of the intracranial dura mater takes part in the conveyance of the *cerebro-spinal fluid* to the general circulation, and no special importance can be ascribed to direct passage through the walls of the pial veins and dural sinuses, except that which takes place through the latter where they are penetrated by the Pacchionian granulations."

Dr. Noël Paton, from "Observations on the Metabolism in the Dog before and after Removal of the Spleen," finds that in the latter condition there is a more rapid excretion of water after a meal, probably indicating a more rapid absorption, but that otherwise there is no essential difference in the course or nature of the metabolism, either during fasting or after feeding with the ordinary proteids of flesh, with vegetable

food, such as oatmeal, or with food rich in nucleins, such as thymus gland.

Dr. Paton, with Drs. Gulland and Fowler, finds, further, that in the spleenless dog, cat, or rabbit there is no diminution in the number of blood corpuscles; that after hæmorrhage or hæmolysis the normal number of corpuscles is regained as rapidly as before removal of the spleen; that injection of extract of spleen does not increase the number of erythrocytes; and that probably in these animals the spleen has no important action as a blood-forming organ.

Dr. F. D. Boyd contributes the results of experiments on the function of the medulla of the kidney. He finds that when the entire medulla of the rabbit's kidney is removed, the operation leads to such disturbances of circulation as to cause necrosis and loss of function of the remaining cortical part of the organ; that Ribbert's experiments, which were supposed to support Ludwig's theory of the secretion of urine, are unreliable; and that partial excision of the medulla is not followed by increased secretion of urine, or by increased metabolism—so that excision of the medulla differs from excision of a part of the whole kidney, as in the observations of Bradford.

Dr. R. J. A. Berry, from an extensive study of the comparative anatomy of the vermiform appendix in a large series of animals, concludes—“(1) That lymphoid tissue is the characteristic feature of the cæcal apex. The vermiform appendix of man is, therefore, represented in the vertebrate kingdom by a mass of lymphoid tissue, situated most frequently at the cæcal apex. (2) As the vertebral scale is ascended, this lymphoid tissue tends to be collected together into a specially differentiated portion of the intestinal canal—the vermiform appendix. (3) The vermiform appendix of man is not, therefore, a vestigial structure; on the contrary, it is a specialised part of the alimentary canal.”

Mr. H. Rainy concludes, from an experimental research made on rabbits, that diphtheritic paralysis is associated not only with change in the peripheral nerves, but also with alterations in the spinal cord, which are always found *post mortem* when paralysis was observed during life. The changes in the cord are chiefly cellular, but may be associated

with vascular alterations. They consist in chromatolysis to a moderate degree, with increased staining capacity of the achromatic substance for acid stains, and vacuolation of the cell protoplasm. The cell change is probably antecedent to the nerve change.

In an interesting paper Dr. E. Scott Carmichael records the results of injection of micro-organisms into the portal system. Typhoid bacilli, *B. coli communis* and streptococci were injected, and, except in one case, where the infection may well have occurred *post mortem*, the bile was found to be sterile. Hence, the infection of bile from the intestinal tract probably does not take place through the portal vein and liver. Sherrington has shown that even when the general blood circulation is teeming with micro-organisms none can pass through normal hepatic tissue. Infection through the general blood stream to the cystic artery is not likely to occur. There is thus only one path open for infection of the gall-bladder—namely, by direct extension from the intestinal tract itself.

The great importance of *Bacillus coli communis* in the causation of cystitis is insisted on by Dr. Kenneth M. Douglas.

Many other papers, which we have not had space even to name, but which are all of interest and value, are comprised in the volume.

A Manual of Surgical Treatment. By W. WATSON CHEYNE, C.B., M.B., F.R.C.S., F.R.S.; Professor of Clinical Surgery in King's College, London; Senior Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, &c.; and F. F. BURGARD, M.D. and M.S. (Lond.), F.R.C.S.; Teacher of Operative Surgery in King's College, London; Surgeon to King's Hospital and the Children's Hospital, Paddington Green, &c. Part VI. Section II. London and Bombay: Longmans, Green & Co. 1903. Pp. 559.

THE present volume completes this admirable series, and well maintains the excellence our perusal of its predecessors led us to expect. It is devoted to the surgical affections of the rectum and anus; the pancreas, liver, gall-bladder, and

bile-ducts; spleen; the genito-urinary organs; the breast and thorax.

In a work of such excellence the reviewer's task is a light one, as the points necessitating criticism are but few indeed.

In the chapter on the operative treatment of cancer of the rectum we find the method of treatment described for extensive cancer, or cancer situated high up, is that of excision partly or entirely through the abdomen, the proximal end of the cut bowel being in either case fixed in the inguinal region as a permanent colostomy opening.

Quénu's method is fully described, but no mention is made of the method recently advocated by Sir Charles B. Ball, of this city, in which the combined method is made use of in certain cases, but the meso-rectum is divided obliquely below and parallel to the superior hæmorrhoidal artery, and the upper cut end of the bowel is brought down and fixed to the anal margin subsequent to the removal of the lower diseased segment.

The chapter devoted to the surgical affections of the pancreas is short, but well up-to-date.

In the section on the gall-bladder and bile-ducts, in summing up the relative merits of the operations as applied to conditions in which stones are present in a moderately healthy gall-bladder, the authors recommend cholecystectomy, provided the adhesions are slight and the patient's condition warrants it. We doubt whether the majority of surgeons will agree with this recommendation, as cholecystostomy, which is a much less severe procedure, gives such excellent results.

In connection with movable kidney, the advice is given that, so long as the patient does not know that the kidney is movable and the condition is only discovered by the surgeon when examining for something else, "he should never inform her if he discovers it accidentally." Of course, the authors do not mean this advice to be always literally followed. If it was always accurately followed by the majority of surgeons we fear their professional reputations would suffer at the hands of those who did not follow it or know of it.

We strongly endorse the authors' remarks in paragraph II., page 498, in connection with the removal of the cervical glands as a part of the radical operation for mammary cancer.

Similarly, we think they sum up correctly the value of oöphorectomy as applied to the treatment of this condition.

The volume before us, which is amply illustrated, completes a work which, in our opinion, has no equal in the English language for soundness and thoroughness in connection with the treatment of surgical affections. It fills a long-felt want, and we have no doubt will be studied with benefit by every surgeon desirous of making himself acquainted with thoroughly sound doctrines of surgical treatment. We heartily congratulate the authors on their successful completion of a work of which British surgery may well feel proud.

The Surgical Diseases of the Genito-Urinary Organs. By E. L. KEYES, A.M., M.D., LL.D.; Consulting Surgeon to the Bellevue and the Skin and Cancer Hospitals; Surgeon to St. Elizabeth Hospital; formerly Professor of Genito-Urinary Surgery, Syphilology, and Dermatology at the Bellevue Hospital Medical College, &c.; and E. L. KEYES, jun., A.B., M.D., Ph.D.; Lecturer on Genito-Urinary Surgery, New York Polyclinic Medical School and Hospital; Surgeon to the Out-Patient Department, St. Vincent's Hospital; Physician to the Venereal Clinic, Out-Patient Department of the House of Relief of the New York Hospital, &c. A Revision of Van Buren and Keyes's Text-book. With 174 Illustrations in the Text and 10 Plates, eight of which are coloured. New York and London: D. Appleton & Company. 1903. Pp. 827.

VERY considerable changes have been made in the subject-matter of this book since its first appearance in 1867. Syphilis has been eliminated, and rightly too, as it is, as the authors state, a genital disease only in its method of inception, not at all in manner of expression. Gonorrhœa is, however, fully dealt with, even to its widespread complications and sequelæ—a procedure which is essential in order to make the study of the subject complete. Over 110 pages are devoted to it. The authors draw a careful distinction between the terms "urethral chill" and "urinary fever."

"Urethral chill" includes three conditions, any one of which may prove fatal:—

- I. Shock to the whole nervous system.
- II. Shock to the kidneys, inducing uræmia.
- III. Toxæmia, septicæmia, or pyæmia.

"The first two conditions deserve the title of urethral shock or chill, while the last is urinary fever or chill, properly speaking, since the toxic elements are derived from the urine."

In speaking of retrograde catheterisation in connection with the treatment of stricture of the urethra, after describing the procedure and the indications for its performance, the following sentence, which is an excellent example of American "boasting," occurs:—"Most urinary surgeons in this country pride themselves never to have performed retrograde catheterisation, but in Europe, where external urethrotomy is less often done, retrograde catheterisation seems to be resorted to quite frequently."

A chapter is devoted to the surgical treatment of hypertrophy of the prostate—a subject still engrossing the attention of surgeons. The authors favour the suprapubic in preference to the perineal route. The majority of their surgical confrères in America favour the perineal. Our own experience leads us to endorse the authors' recommendation. Surely it is useless now to write about ligature of the internal iliac artery as a radical method of treating hypertrophy of the prostate—a line of treatment that would be undertaken only by a lunatic. In justice to the authors, they merely mentioned the procedure, but do not recommend it; but to mention it at all, unless to strongly condemn it, is, in our opinion, wrong. Similarly, we think it a mistake to mention "injection" as a line of treatment for varicocele. True, only five lines are devoted to it, but in revising a book this method, which is now relegated to antiquity, should surely be deleted and left to oblivion.

Subcutaneous ligature is the operation of choice of the authors for varicocele, while the injection method of treating hydrocele of the tunica vaginalis is the procedure recommended by them. Both methods are very fully described, but the open methods of treating these conditions have but a few lines devoted to their description—certainly not more than one-sixth to one-third of the space devoted to the methods recommended is devoted to these radical procedures by the

authors. Most British surgeons would prefer to see this order reversed.

The word "incised," seven lines from the top of page 41, should read "excised."

On the whole, we can confidently recommend the book as sound and worthy of perusal. The illustrations are all that can be desired.

Saunders' Year-Book of Medicine and Surgery: being a Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from Journals, Monographs, and Text-books of the leading Authors and Investigators. Under the general editorial charge of GEORGE M. GOULD, M.D. Surgery. London and Philadelphia: W. B. Saunders & Co. 1903. Pp. 671.

THIS work is now so well known that it is merely sufficient for us to mention that the volume for this year has come to hand, and is fully equal to those issued in preceding years. The same excellence is maintained. There is not only an epitome of everything that has appeared in print on surgery generally, or its special branches, during the past year worth recording, but an editorial criticism made by one of the editor's capable collaborators is often added.

The Development of the Human Body: A Manual of Human Embryology. By J. PLAYFAIR M'MURRICH, A.M., Ph.D. London: Rebman. 1903. Pp. 527.

IN his preface the author rightly observes that "the great key to the significance of the structure and relation of organs is their development." In fact it is only by a constant reference to the study of embryology that anatomy becomes a science, and ceases to be a mere collection of disjointed facts. Therefore we welcome heartily the appearance of a really good book on human embryology, adapted for the use not only of those who are professional embryologists, but of students and those of riper age who desire to know the present condition of this rapidly advancing branch of knowledge. Of course, such a work must be mainly a compilation, but a

compilation by a master who knows how to arrange his facts and give to each its due relative importance is of great value, as everyone will admit who reads the book before us. Among its many merits we may point out the following. It is concise, for although it runs to upwards of five hundred pages, the print is large and the 270 well-chosen and beautifully executed drawings with which the pages are adorned take up a good deal of the space. The descriptions are singularly lucid and intelligible; and the author, although a professor on the other side of the Atlantic, has written his book in English and not in American, for which he will receive the thanks of his readers in this hemisphere.

The work is divided into two parts, dealing respectively with general development and organogeny. In the first part the spermatozoon and ovum, fertilisation, segmentation, formation of the germinal layers, the development of the external form of the embryo, the medullary groove, notochord and mesodermic somites, and the yolk stalk, belly stalk and fetal membranes are described; while in the second part the development of the different systems is considered in a series of chapters. An interesting final chapter treats of post-natal development. Here we find a record of the great alteration which takes place in the geometrical shape of the body after birth, some parts undergoing a diminution in size relative to the entire body, others a relative increase. Tables are given showing that the rate of growth, both of the embryo before birth and of the child after birth, is very variable—a diminution taking place from the eleventh to the thirteenth year, and an increase about the sixteenth. The ages at which these variations occur is somewhat earlier in girls than in boys, as is evident when the annual increase of weight is expressed in curves. Of the organs, some—such as the liver, thymus, thyroid, suprarenals, spleen, nerve centres—undergo a relative diminution in weight as compared with that of the body, while the skeleton, and particularly the muscles, undergo a relative increase, and the digestive tract and lungs remain unchanged. The alterations in the spinal curves, in the shape of the pelvis, thorax, and, above all, of the skull, are well although briefly described. A short but well-selected bibliographical list is given at the end of each chapter, and there

is a good index. The bringing out of the book is unexceptionable.

Contribution à la Pathogénie et au Traitement de l'Épilepsie.

Par M. le DR. E. LAMBOTTE. Bruxelles: Hayez. 1903.

Pp. 29.

THIS lively and eminently readable essay was sent in in answer to the following question, proposed by the Royal Academy of Medicine of Belgium:—"Elucidate by clinical observation, and, if necessary, by pathogenic and therapeutic experiments, diseases of the central nervous system, and principally epilepsy." The work of Dr. Lambotte was awarded a prize of 500 francs, and is published by the Academy.

We cannot follow the author step by step through his paper, but we must confine ourselves to saying that everything tends, in his opinion, to show that epilepsy is due to increased intracranial pressure, and that if this pressure could be permanently removed the fits would cease. The temporary good effects which follow removal of portions of the bone of the skull are shown to be due really to the relief of pressure, and not to any other element in the operation. That the fits recur is explained by the return of pressure which follows the cicatrization of the soft parts; and when the bone is replaced the soft tissue formed between the edges of the bone tends to draw down the replaced portion of the cranium and to diminish again the size of the cranial cavity. To obviate this he proposes to remove very large portions of bone, even the entire cranial vault, and to insert metallic pieces between the cut edges so as to prevent the retraction.

He describes a very interesting cause of increased pressure which he has frequently met with in cases of epilepsy which he has trephined. This is an accumulation of fluid, not colourless, and situated in the subarachnoid space, but yellowish, and lying in the arachnoid sac. This is, therefore, manifestly not normal cerebro-spinal fluid, but serum, and the condition of the arachnoid is here similar to that of the tunica vaginalis in hydrocele.

The removal of this fluid causes cessation of the epileptic attacks, which, however, recur when the trepan wound heals,

but again disappear if the accumulating fluid is removed by puncture, to again supervene on the re-accumulation of the exudation. For the treatment of these cases the writer proposes to insert one end of a thread into the cavity while the other end lies in the subcutaneous tissue. The thread acts as a drain, conveying the fluid from the arachnoid sac where it is secreted into the areolar tissue, from which it can readily be absorbed. He has practised this operation in one case in which the results are so far good, since the patient, who was previously punctured with only very transitory advantage, has now been for five months without any attack. That this method is capable of application to effusions into other serous sacs is evident.

How far the author's views and methods of treatment are sound, time only can tell, but there can be no doubt that he has put both forward in an interesting and attractive form in this essay.

The Edinburgh Medical Journal. Edited by G. A. GIBSON, M.D., F.R.C.P. Ed.; and ALEXIS THOMSON, M.D., F.R.C.S. Ed. New Series. Vol. XIII. Edinburgh and London: Young J. Pentland. 1903. 8vo. Pp. vi + 572.

WITH their usual courtesy the editors and the publishers of this excellent "Monthly" have presented to us a bound copy of the latest volume published. All we need say is that Volume XIII. of the New Series fully sustains the high reputation of this old-established Medical Journal.

Just now Dr. Aitchinson Robertson's article on the "Local Distribution of Cancer in Scotland" will be read with keen interest. The second series of Dr. G. A. Gibson's lectures on the "Nervous Affections of the Heart," delivered before the Royal College of Physicians of Edinburgh, also finds a place in this volume. There is also a thoughtful paper on the "Selection of Cases of Pulmonary Tuberculosis for Sanatorium Treatment," by Dr. T. N. Kelynack, Assistant Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest, London. One passage from this paper is well worth quoting. Dr. Kelynack writes: "By extravagant advocacy, unreasoning confidence, and the want of proper

care in the selection of suitable cases, the best method known to medical science for the effectual treatment of consumption is in danger of being discredited, and already there are signs that, in some quarters, the faith and the support of the public are waning."

In the departments other than that devoted to "Original Communications," this volume is also up to the standard.

Atlas and Epitome of Human Histology and Microscopic Anatomy. By DOCTOR JOHANNES SOBOTTA, of the University of Würzburg, Bavaria. Edited, with extensive additions, by G. CARL HUBER, M.D.; Junior Professor of Anatomy and Director of the Histologic Laboratory at the University of Michigan. Authorised Translation from the German. With 171 Illustrations on 80 Lithographic Plates, and 68 Text Illustrations. Philadelphia and London: W. B. Saunders & Co. 1903. 8vo. Pp. 248.

IN his "Atlas und Grundriss der Histologie und mikroskopischen Anatomie des Menschen," Dr. Sobotta, of the University of Würzburg, Bavaria, succeeded in combining numerous well-chosen and accurate illustrations with a concise explanatory text, so as to make his work both an atlas and a text-book. It is now presented to English readers through the enterprise of Messrs. W. B. Saunders, and with the invaluable aid of Dr. G. Carl Huber, the Director of the Histological Laboratory of the University of Michigan, and of Dr. Lydia M. De Witt, to whom was entrusted the task of translation from the original German.

The illustrations comprise eighty lithographic plates, which have been reproduced with the aid of over thirty colours, and sixty-eight figures, reproduced by means of photomechanical methods. The preparations were, in the first instance, photographed under the same magnification as that under which they were drawn. The photographs were then used as a basis for the drawings. Outline drawings, even to the finest details, were traced on tracing-paper, and then transferred to drawing paper. This method insures accuracy in magnification, and obviates distortion, while the photograph serves as a control picture during the preparation.

of the drawing. Nearly all the illustrations in the volume were made under relatively low magnifications, such as are used by students in the general microscopic courses. Many of the figures portray, under very low magnifying powers, a general view of entire organs or parts of organs, so enabling the student to grasp in a more accurate mental picture the relations of the component structures of the several organs.

It is grimly stated in the Editor's preface that most of the illustrations were made from sections prepared from human tissues obtained from "individuals who had been executed." The tissues employed may therefore be regarded as fresh and normal in every respect. Nearly all the microscopic preparations were made by Sobotta.

The scheme of the work is simple. The first part, extending to something over 60 pages, describes the histology of cells and tissues—the latter embracing epithelial, supporting or connective, muscle and nervous, tissues. The second part is concerned with the microscopic anatomy of the several organs—the skeletal system, the organs of the muscular, nervous, vascular (blood and lymph), digestive, urinary, reproductive (male and female), and respiratory systems; the skin and the special sense organs.

A mead of praise is due to Dr. Lydia M. De Witt for the manner in which she has executed the difficult task of translation into good and smooth-running English. A copious index concludes the work, which is one that will undoubtedly make its mark in English-speaking countries.

Diseases of the Skin: an Outline of the Principles and Practice of Dermatology. By MALCOLM MORRIS, Consulting Surgeon to the Skin Department, St. Mary's Hospital, London; Corresponding Member of the K. K. Gesellschaft der Aertze in Wien; Honorary Member of the Wiener dermatologische Gesellschaft and of the Société française de Dermatologie. With 2 Coloured Plates and 58 Plain Figures. New Edition. London, Paris, New York and Melbourne: Cassell & Co., Limited. MCMIII. Pp. 642.

We cordially welcome the appearance of a new edition of this excellent manual on skin diseases. When noticing the

first edition in the number of this Journal for February, 1894, we observed that the book was "the handiwork of an acknowledged master of the subject with which he has undertaken to deal," and we now (as we did then) congratulate the author most warmly on the satisfactory result of his efforts to produce a readable, reliable and concise text-book on one of the most important group of diseases to which the human frame is prone.

In these pages medical students and practitioners alike will find a clear and graphic description of the several cutaneous affections, while endless hints as to treatment will be found throughout the book. In this connection, Mr. Malcolm Morris points out that the index has been considerably enlarged with the object of enabling the reader to see at a glance the main lines of treatment available in a given disease.

The work is well illustrated by two coloured plates and fifty-eight plain figures. The plates show the various fungi of ringworm and a number of the micro-organisms which play an important part in the ætiology of skin diseases. Several new illustrations have been added to those which appeared in former editions, and for some of these the author expresses his acknowledgments to Dr. Gilchrist, of Baltimore, and Dr. Arthur Whitfield, of London.

At this time of day, when the reputation of this manual is so fully established, it is not necessary to go at any length into the contents of the book. There are a few points, however, which call for notice or comment. In a brief account of the part played by protozoa in causing definite diseases in man and in the lower animals, Mr. Malcolm Morris refers to the so-called "molluscum bodies" and "cancer bodies," which have certain resemblances to encysted protozoa. Mr. Morris states that the question is not settled, but he considers that the balance of evidence is still in favour of those who hold that the molluscum and cancer "bodies" are the result of exceptional pathological changes within the cells themselves (page 10).

Surely, there is a slip at the top of page 62, where the composition of Ihle's paste is said to be ichthyol, lanolin, vaselin, zinc oxide, and powdered starch. It is resorcin, not ichthyol, which is the most active agent in this useful pre-

paration. We do not deny that ichthyol would be a most serviceable substitute for resorcin, for we have had practical proof of its efficacy.

On the vexed questions of the ætiology of leprosy and the relation of "yaws" to syphilis, Malcolm Morris dissents from the views held and advocated by Jonathan Hutchinson. Thus, at page 490, he observes: "As regards fish in particular, there is abundant proof that persons may contract leprosy who have never had the opportunity of eating fish." Again, at page 500, he says: "It has been contended by some authorities that yaws is a form of syphilis, modified by race and climate, but, though it presents many points of analogy with syphilis, I am inclined to agree with Rat and others, who have had extensive opportunities of studying the disease clinically, that on the whole the balance of evidence is against its being syphilis." He admits that further pathological research is required to settle the question.

In conclusion, we have much pleasure in recommending Mr. Malcolm Morris's concise yet comprehensive "Outline" (as he modestly terms it) of the Principles and Practice of Dermatology to all who desire to make themselves conversant with the subject.

Memoirs and Letters of Sir James Paget. Edited by STEPHEN PAGET, one of his sons. With a Portrait. Third Edition (Eighth Impression). With a Postscript by SIR THOMAS SMITH. London, New York and Bombay: Longmans, Green & Co. 1903. 8vo. Pp. 465.

WE owe our readers an apology for not having sooner drawn their attention to this delightful book. It is as instructive as it is interesting. As the title indicates, the work consists of two parts—the first, an autobiography; the second, a biography written by a loving yet an impartial hand.

The "Memoirs," which make up the first part of the book, were written by Sir James Paget himself in the years 1880 to 1885. Mr. Stephen Paget explains, in the preface to the first edition, published in 1901, that they tell chiefly of Sir James Paget's early life. Six chapters are given to the years 1814-1851, and only one chapter to later years. A "com-

mentary" on each chapter has been added by the editor, who has also, in the second Part, completed the story of the life of one of the ablest surgeons and most erudite and eloquent members of the Medical Profession of any age or any country.

It may not be generally known that James Paget had a hard uphill fight for many years before he entered upon that grand professional career of which his countrymen are so justly proud. The story of his struggles and final victory is graphically told in this charming book, which should be read by every medical student and practitioner. Thanks to the enterprise of the famous publishing firm of Messrs. Longmans, Green & Company, the volume can be purchased at a trifling cost. The price of the present, the third, edition is six shillings net.

Catechism Series. Pathology. Part II. Pp. 68. Pathology. Part III. Pp. 62. Physiology. Part III. Second Edition. Pp. 80. Edinburgh: E. & S. Livingstone. 1903.

It will interest those medical students who are about to present themselves for examination to learn that these parts of the well-known "Catechism Series" have recently been published. We have so often referred to Messrs. Livingstone's Students' Catechism that we have only to say that the neatly printed little books which compose the series, and which may now be counted by tens, no doubt fulfil a useful mission. But is the information imparted by them always adequate? To take a single instance. In the section on "the Glycogenic Function of the Liver" (Physiology, part 3, pages 4 to 9 inclusive) the only allusion to the relation of the pancreas to diabetes mellitus is contained in the bald statement that this condition may (among many other causes) be produced "by excision of the pancreas."

Études sur la Contraction tonique du Muscle strié et ses Excitants. Par Mdlle. J. IOTÉYKO. Bruxelles: Hayez. 1903. Pp. 100.

THIS essay, published by the Belgian Royal Academy of Medicine, maintains the theory that in muscle, not only the

anisotropic substance is contractile, but also the sarcoplasma or isotropic substance, and that while the mode of contraction of the former is short and abrupt and followed by rapid relaxation, that of the latter is slow, sustained, and succeeded by a much slower and more gradual elongation. The relative proportion of these two substances is different in the different kinds of muscle, white, red, and unstriated, in which the proportion of sarcoplasma undergoes a progressive increase, and the tonicity of contraction increases accordingly.

There are many agencies by which the motor properties of the sarcoplasma of striated muscle may be increased, such as veratrin, anæsthetics, ammonia, and some salts; we then obtain on stimulation a double contraction, the first being short and due to the striated substance, the second long and sustained, due to the sarcoplasm. While the galvanic current acts on the anisotropic substance of muscle only when it varies in intensity, as at closure or opening, the sarcoplasm is excited during the whole time of passage of the current, hence very short currents, as induction shocks have much less effect on it than the continuous current.

But while isolated induction shocks produce but little effect on the sarcoplasm, this becomes excitable by a repetition of such stimuli, either tetanising or applied at regular intervals. This is due to what the authoress calls latent addition, and explains the phenomenon of what is known as the "staircase," when a series of single stimuli is applied. That this is due to the sarcoplasma and not to the anisotropic substance is shown by the elongation of each twitch, which is for many reasons clearly not due at this stage to fatigue. Not only are chemical and electrical stimuli capable of calling out the tonicity of a muscle, but this can be excited by mechanical stimuli, as shown by the idio-muscular contraction of Schiff.

The contracture of Tiegel, or that tonic shortening which is sometimes noticed in a muscle when it is submitted to a series of induction shocks, is not the result merely of the electric stimulation. It occurs at the commencement of the stimulation, and often gives way later on to an actual elongation of the muscle. It is seen only in Spring frogs who have not recovered from the effects of their Winter sleep. During hibernation toxic products of metabolism accumulate in the

muscles, and act on them like veratrin, and like this drug raise the excitability of the sarcoplasm so as to make it respond to induction shocks. That the phenomenon is not due to cold is shown by the writer, who was able to obtain it in July in frogs who had been kept in captivity since the winter.

The contracture of fatigue occurs later on in the course of the stimulation, and is also due to the action on the sarcoplasm of toxic matters engendered by the contracting muscle. But while this is a normal phenomenon, the contracture of Tiegel is pathological.

A number of ingenious experiments are described, by which it is shown that veratrin acts on the muscle and not on the nerve. Even that action which supervenes after some time when the cut end of the nerve of a nerve-muscle preparation is dipped into a solution of veratrin, is shown to be due to a passage of the poison along the nerve to the contractile muscle.

By experiments made on muscles poisoned by veratrin a complete independence is demonstrated between the initial short contraction of the anisotropic substance and the secondary slower contraction of the sarcoplasm. By this means the longer latent period, the less amplitude, the longer duration, and the more extended form of the latter contraction can be well studied. The sarcoplasm is less excitable but more resistant to fatigue than is the anisotropic substance.

Even in the pale striated muscles indications of rhythmic contractions are sometimes seen, such as those which occur in the heart, and to a less degree in red and smooth muscle. These, however, are noticed only when the pale muscle is submitted to sarcoplasmatic excitants, as veratrin, in closing tetanus and during the contraction of Tiegel.

The similarities and differences between the normal tonic contraction and the idio-muscular contraction of Schiff are pointed out. In the former the propagation of the wave of contraction is very slow, while in the latter the wave does not travel at all, but is stationary. This occurs in anæmic, fatigued and dying muscle, and is followed immediately by *rigor mortis*.

Normally the tonicity of the muscle is kept up by minimal continuous stimuli reaching it through the nerves. The

more powerful abrupt discharges, which call out the voluntary contractions, act on both parts of the muscle.

Attention is directed to the advantage which the muscle derives from this tonic contraction in its normal action, and to the part which tonicity plays in many abnormal forms of contraction, as in cases of neurasthenia and hysteria.

This essay, which is evidently the outcome of much labour, is a valuable contribution to the physiology of muscle. It is written in an agreeable, intelligible style, and the text is illustrated by many very successful graphic records. It concludes with a good bibliography.

Index Medicus. A Monthly Classified Record of the Current Medical Literature of the World. Second Series. ROBERT FLETCHER, M.D., and FIELDING H. GARRISON, M.D., Editors. Vol. I. Nos. 1, 2 and 3. January, February and March, 1903. Published by the Carnegie Institution of Washington. Rockwell and Churchill.

IN common with all who have the interests of Medical Literature at heart we hail with great satisfaction the reappearance of the "*Index Medicus*." It is a publication which should never have been allowed to lapse, and it will be a grave blot on the fair fame of the Medical Profession if a like fate should befall the second series, of which the first three numbers lie upon our desk. Yet rumour has it that the support so far given to the venture has been half-hearted and quite unworthy of the merits of the publication.

In a note to the subscribers Dr. Robert Fletcher, the Editor-in-Chief, explains that the delay in issuing the first number of the new series of the "*Index Medicus*" has been unavoidable. The printers found it necessary to procure an entire new supply of type, such as a journal representing from fifteen to twenty languages requires. A very large proportion of this type consists of special and accented letters which had to be made by hand. The delay from waiting on the typefounder, though provoking, has resulted in the production of a rather larger type than was made use of in the first series, and the clear appearance of which commends itself.

While this series of the "Index Medicus" begins, as announced, with 1903, some titles from foreign journals for December, 1902, many of which seemed to indicate continuation, have been included in the first number.

Numbers 2 and 3, for February and March, have been issued as a double number, the material having sufficiently accumulated, owing to the delay in the publication of the January number.

The classification of the subject-matter adopted is based, as far as possible, upon the latest accepted views in Medicine, the whole range of which is covered in the Table of Contents.

The subscription price of the "Index Medicus" (to be paid in advance) is five dollars per annum in the United States and Canada, twenty-five shillings in the United Kingdom, twenty-five marks in Germany, thirty francs in France, and thirty lire in Italy. All communications relating to subscriptions must be addressed to the Carnegie Institution of Washington, Washington, D.C., United States. Letters relating to the editorial department should be addressed to the Editors of the "Index Medicus," Washington, D.C.

The Medical Annual. A Year-book of Treatment and Practitioners' Index. 1903. Twenty-first Year. Bristol: John Wright & Co. London: Simpkin, Marshall & Co.

It is difficult to say anything fresh in praise of this excellent hand-book that for twenty-one years has proved so valuable a year-book of reference to medical practitioners. It gives a true reflection of the knowledge of the year, and the present volume gives a general summary of the year's work.

Wheeler's Hand-book of Medicine and Therapeutics. Second Edition, Revised and Enlarged. By WILLIAM R. JACK, B.Sc., M.D., F.F.P.S.G.; Assistant to the Professor of Practice of Medicine, Glasgow University; Physician to the Outdoor Department, Glasgow Western Infirmary. Edinburgh: E. & S. Livingstone. 1903.

WE must congratulate Dr. William Jack on successfully bringing Dr. Wheeler's text-book up to date without

materially departing from the excellent plan of the original volume. As might be expected, the advance of scientific medicine during the decade since the book first appeared necessitated Dr. Jack writing afresh the whole article on bacteriology and the study of infectious diseases, and he has accomplished his task most creditably.

The Pocket Therapist: A Dictionary of Disease and its Treatment. Being a Concise Manual of Modern Treatment and an Aid to Memory, for Students and Practitioners. By THOMAS STRETCH DOWSE, M.D., F.R.C.P.Ed.; President North London Medical Society; Member of Council and Secretary for Foreign Correspondence, Medical Society of London; Physician to the North London Hospital for Consumption and Diseases of the Chest, &c. Third Edition, Revised and Enlarged. Bristol: John Wright & Co. 1903.

THIS pocket dictionary is just about one of the best we have seen. In its 411 pages the author has condensed an immense amount of valuable information of a practical character. We heartily recommend it.

An English Hand-book to the Paris Medical School. By A. A. WARDEN, M.D.; Visiting Physician to the Hertford British Hospital, Paris. With Prefatory Letters by LORD LISTER and PROF. W. W. KEEN. London: J. & A. Churchill. 1903. Pp. 74.

A MINE of information in a small compass, and a reliable guide to all British students of medicine or practitioners who desire to visit Paris with the intention of pursuing their medical studies in the famous Parisian School of Medicine. Under the name of each hospital the author gives its position in the city and the means of reaching it, the professors—physicians and surgeons—who have wards in it, and the days and hours appointed for their visits and lectures. Details are added in connection with museums and libraries, medical societies and their meetings, the practice of medicine in France, the Pasteur Institute, the Institute of France, &c.

Dr. Warden also appends a list of the English and American physicians who practise in Paris, and the addresses of some English-trained nurses and nursing institutions.

A Pharmacopœia for Diseases of the Skin. Edited by JAMES STARTIN, Senior Surgeon to the London Skin Hospital, Fitzroy-square. Fifth Edition. Bristol: John Wright & Co. 1903. Pp. 64.

WE have noticed with approval former editions of this compact Formulary for Skin Diseases. The symbols need revision in one or two of the prescriptions, and what is the English of the phrase "Modus Oj ad aquæ cxxx"? We presume the meaning is—"In the proportion of one pint to 30 gallons of water." The "misturæ" are made up to a pint, the dose in some instances being only one to two drachms in water. They are, therefore, practically "stock bottles."

MEDICINE IN THE FUTURE.

DR. F. BILLINGS, in his address to the American Medical Association, said: "To-day medical science demands primary instruction to fit a man as an investigator and scientific physician. If not properly educated he cannot grasp the great problems which medicine presents to-day as he did the more simple clinical facts which comprised the art of medicine and surgery a few years ago."

TYPHOID FEVER SIMULATING CEREBRO-SPINAL FEVER.

MM. MOIZARD and GRENET (*Arch. de Méd. des Enfants*) report the case of a boy, aged five years, who was admitted to hospital complaining of headache, loss of appetite, sleeplessness, cough, and confined bowels. His axillary and inguinal glands were enlarged: there was pain and stiffness in the muscles of the neck. He suffered from dyspnoea, and râles were heard on both sides of the thorax. He vomited without nausea, and he was unable to contract the leg on the thigh. Lumbar puncture detected no cellular elements in the cerebro-spinal fluid. The Widal test was positive. He recovered in four weeks. The diagnosis depended on the Widal reaction and the absence of leucocytes in the cerebro-spinal fluid.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—LOMBE ATTHILL, M.D., F.R.C.P.I.
General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

SECTION OF STATE MEDICINE.

President—NINIAN M. FALKNER, M.D., F.R.C.P.I.
General Secretary—F. C. MARTLEY, M.D., F.R.C.P.I.

Friday, May 1, 1903.

The PRESIDENT in the Chair.

The Notification of Measles.

SIR CHARLES A. CAMERON, C.B., read a paper on this subject, giving the history of the notification throughout the Three Kingdoms, showing that it is in force in but an insignificant number of towns, and that many towns after adopting it have since reversed their action; he recommended that it should be restricted to first cases of the disease, when an epidemic had been established.

The paper was discussed by DRS. DAY, KIRKPATRICK, PARSONS, MAGENNIS, and BYRNE, and SIR CHARLES CAMERON replied.

Method of Isolating the Typhoid Bacillus from Soil, Water, Fæces, &c., with Special Reference to (and a Demonstration of) the New Method of Drigalski and Conradi.

PROFESSOR E. J. MCWEENEY read a paper on this subject.

The author began by referring to the difficulties which were encountered in the effort to demonstrate the typhoid bacillus, owing to the absence of specific staining reaction, special virulence for animals, and appropriate enrichment-method. The many plans that had been suggested for the encouragement of the growth of Eberth's bacillus at the expense of that of its saprophytic congeners had proved ineffective. Addition of antiseptics to fluid

media to which the suspected substance was added resulted not in the exclusive development of the typhoid bacillus, but in the production of an attenuated form of *B. coli*, which was liable to be mistaken for it. The author had satisfied himself that when samples of bile containing large numbers of genuine typhoid bacilli and a few colon bacilli are added to Parietti bouillon and incubated, in 24 hours only the colon bacilli can be found by plating out. The methods of Holz, Elsner and Piorkowski had proved equally unsatisfactory. On the other hand, he had had excellent results with the Drigalski medium, the composition of which was as follows :—Chopped beef, 3 lbs. ; water, 2 litres ; mix ; let stand till next day ; strain off the flesh-water ; squeeze out the meat ; boil for an hour ; filter ; add 20 grms. Witte's peptone ; 20 grms. nutrose (Höchst) ; 10 grms. NaCl ; boil for an hour ; filter ; add 60 grms. agar ; boil 3 hours (or autoclave, 1 hour) ; make faintly alkaline to litmus paper ; filter ; boil an hour. Meanwhile prepare a solution of litmus according to Kubler and Tie-mann, boil it for 10 minutes ; to 260 c.c. of this add 30 grms. pure lactose ; boil for 15 minutes, and add to the boiling agar medium ; shake well, and restore, if necessary, the faintly alkaline reaction. Then add 4 c.c. of a hot 10 p.c. solution of anhydrous Na_2CO_3 , and 20 c.c. of a freshly prepared solution of Crystal Violet B. Höchst (strength 0.1 gm. in 100 c.c. warm sterile distilled water). The medium is now ready, and a number of Petri dishes should be at once poured with some of it (about 15 c.c. in each), and the rest stored in flasks of about 200 c.c. content. The inoculation is done by rubbing the dry, hard surface of the medium over with a bent glass rod. A series of plates should be rubbed over with the same rod without recharging, so as to get discrete colonies. The author allows his plates to cool after pouring, without the lid, so as to avoid condensation-water. While cooling they are loosely covered with a piece of sterile filter paper. Contamination with air germs does not occur owing to the inhibitory action of the Crystal Violet. After inoculation the plates are incubated 18–24 hours at 37°. It is then quite easy to recognise the typhoid colonies by their bluish transparent appearance and small size, whilst the *B. coli* colonies are larger, more opaque, often doubly contoured, and reddish. It is always necessary to test the selected colonies, which is most quickly done by rubbing up a small trace in a hanging drop of highly dilute typhoid serum, and observing whether agglutination occurs. In this way the bacillus of Eberth can readily be detected in the fæces within 24 hours, and the diagnosis made at a period

when the Gruber-Widal test as yet yields a negative result. As the result of his own experience Professor McWeeney could fully corroborate the statements made by the inventors of the medium. Negative results were of little value, however, unless repeated examinations were made, and he had had such in cases verified as typhoid at the autopsy. By the aid of the method he had in an abnormal case of typhoid detected the bacillus of Eberth in the bile, contents of duodenum, liver, and kidney, whilst he had failed to detect it in the contents of the ileum and colon. He had further found that the bacilli had undergone no diminution in the bile after keeping for three weeks in a capillary pipette, though in the presence of numerous colon bacilli. In the duodenal and other intestinal contents, however, they were not to be detected after keeping for the same period. The very numerous blue colonies that developed on the plates inoculated with the putrid fæces appeared to be *B. fæcalis alcaligenes* of Petruschky—at any rate, not the typhoid bacillus. He emphasised the necessity for the careful testing of suspicious colonies on plates from old putrescent material before giving a positive diagnosis. In conclusion, the speaker described the striking results achieved with the aid of this medium by Koch at Trier, where the bacillus of Eberth was found in the fæces of apparently healthy "contacts," and urged the necessity of individual study of each case of typhoid and of examining the fæces of "contacts," and, where necessary, of disinfecting them, in order to get the upper hand of this infectious disease, as we have already done in the case of cholera and plague.

The paper was discussed by DRs. FALKNER, TICHBORNE and SIR CHARLES CAMERON, and PROFESSOR McWEENEY replied.

SECTION OF PATHOLOGY.

President—E. J. McWEENEY, M.D.

Sectional Secretary—A. H. WHITE, F.R.C.S.I.

Friday, May 8, 1903.

F. C. PURSER, M.D., in the Chair.

Ossification within the Capsule of the Crystalline Lens.

MR. STORY and DR. EARL exhibited a specimen showing ossification within the capsule of the crystalline lens. The specimen of true bone was found within the capsule of a partly calcareous lens, which was in a disorganised globe. The bone was distinctly

connected with the vascular tissues of the globe, and pigment granules were present in close apposition to the bone. Ossification of the actual lens is a physiological impossibility, and no authentic case has ever been recorded.

Hydatids of Liver.

DR. EARL exhibited two unilocular hydatid cysts from a liver. One was sterile, and each was about the size of a hazel nut.

Liver and Heart from a Syphilitic Subject.

DR. DOBBIN showed these specimens. A police sergeant, aged fifty-two years, dropped down suddenly dead. On *post-mortem* examination the liver and heart were the only organs found diseased. The liver was lobulated irregularly, hard to cut. On section, two gummata, yellowish in colour, were seen. These microscopically showed round-celled infiltration and fibrous tissue. The left ventricle of the heart was hypertrophied, and its walls contained gummata; the endocardium was thickened and whitened. The microscope showed round-celled infiltration, giant cells, and fibrous tissue formation and obliterative endarteritis.

DRS. EARL, TRAVERS SMITH, BENNETT, and KIRKPATRICK spoke, and DR. DOBBIN replied.

Specimens.

DR. NEVILLE exhibited specimens of (a) salpingitis isthmica nodosa; (b) endothelioma cervicis uteri; (c) placenta of seven months from a woman with chronic nephritis; (d) uterus with two forms of cancer (adeno-papilloma of fundus and adeno-carcinoma of cervix); and (e) microscopical section of myxoma chorii.

SECTION OF SURGERY.

President—L. H. ORMSBY, P.R.C.S.I.

Sectional Secretary—J. LENTAIGNE, F.R.C.S.I.

Friday, May 15, 1903.

THE PRESIDENT in the Chair.

Excision of the Gasserian Ganglion.

MR. GORDON made a communication on a case in which this operation was performed for severe tri-facial neuralgia. The patient, a woman, aged sixty-three years, had been under the

care of Dr. Cope and Dr. Wallace Beatty. Drug treatment having failed, the patient was placed under Mr. Gordon's care, and he operated on September 20, 1902. The woman had suffered from the neuralgia for eight years. At first the attacks had been separated by intervals of weeks, but these intervals had become progressively shorter until, when admitted to the Adelaide Hospital, they occurred every ten minutes, coming on either spontaneously or in response to most trifling stimuli. She had, maddened by despair, on one occasion attempted to commit suicide. Having given an account of the case, Mr. Gordon proceeded to a discussion of the operation. He showed a series of lantern slides, made for him by Professor Scott, to illustrate the operation both in its theory and practice. The success of the operation depended on the facts that the removal of the Gasserian ganglion wiped out of existence the entire fifth nerve, and regeneration was impossible. In the course of his remarks, Mr. Gordon stated that as it was unnecessary so it was inadvisable to preserve a bone flap, in that the formation of this must materially add to the duration of the operation. In raising the dura from the floor of the middle cranial fossa, hæmorrhage was the chief cause of difficulty. This could be best met by plugging the basal foramina. Preliminary ligature of the external carotid he considered futile and undesirable; such ligature would not at all influence hæmorrhage from torn tributaries of the cavernous sinus. Before describing the last step of the operation, certain anatomical features were illustrated—*e.g.*, the relations of the foramina to one another, and the immediate relations of the Gasserian ganglion. The sixth nerve and the cavernous sinus were both intimately related to the ganglion on its inner side and also to its ophthalmic division. In discussing questions regarding the extent of removal advisable, Mr. Gordon expressed himself in favour of complete extirpation of the ganglion with evulsion of the sensory root. A fear of sloughing of the cornea need not influence one's choice in this matter; it is quite a rare complication, and when it does occur is due to sepsis. In his concluding remarks Mr. Gordon referred to the low mortality of the operation in the experience of Rose and Horsley. He asked the members before forming an opinion on the merits of the operation to bear carefully in mind the gravity of the disease for which it is undertaken, and, on the other hand, to remember that there are good grounds for the belief that if the operation is successfully performed the cure of the neuralgia will be both immediate and permanent.

MR. MAUNSELL congratulated Mr. Gordon upon his case and asked why Mr. Gordon would recommend evulsion of the sensory root instead of accurate division.

MR. GOULDING asked Mr. Gordon if he had formed any opinion as to the primary cause of the neuralgia in this case, and if the ganglion had been microscopically examined after its excision.

DR. HAUGHTON said he would like to join in congratulating Mr. Gordon on the success of the operation and on his most interesting paper. He would like to ask if he made any X-ray examination of the dental region, as he (Dr. Haughton) had found several cases of tic douloureux due to peripheral origin—i.e., unerupted teeth in otherwise edentulous jaws, at sixty years and over, the removal of which completely cured the condition. He had also found patches of condensing osteitis, present in some other tic douloureux jaws, followed by relief on removal of these patches.

Traumatic Aneurysm of the Left Subclavian Artery produced by Fracture of the Left Clavicle.

MR. WILLIAM TAYLOR read the notes of a case in which a man, aged sixty-two years, slipped and fell on his left shoulder, sustaining thereby a fracture of the left clavicle about the usual situation, and of the usual oblique variety, but which was complicated by a sinus of the subclavian artery leading to the development of a traumatic aneurysm of that vessel. An X-ray photograph showed the nature of the fracture and demonstrated the presence of a small spiculum of bone projecting downwards, at right angles from the inner end of the outer fragment. The tumour occupied the lower part of the left posterior triangle of the neck, extended inwards underneath the sterno-mastoid muscle, and downwards below the clavicle, overlapping at the same time the broken fragments. A bruit was distinctly heard all over the tumour; pulsation was forcible and visible in the recumbent and sitting postures, but scarcely perceptible in the upright position. There was atheroma and a diastolic aortic murmur, but the urine was healthy. The patient being admitted under Mr. Taylor's care into the Meath Hospital, was at first treated by absolute rest, restricted diet, and iodide of potassium; but, at the end of a fortnight, it was evident from the increase in size of the tumour and the thinning of the skin that rupture was imminent. Operative treatment was then undertaken, the idea being to put a temporary ligature on the first stage of the artery after resecting the inner

third of the clavicle, and then to incise the tumour, turn out the clots, and deal directly with the site of injury. After two hours' careful and dangerous dissection in a space full of important structures and very much diminished by the encroachment of the thin-walled pulsating tumour, the attempt to ligate the first stage of the artery had to be abandoned as utterly impossible under the circumstances. During this dissection the vertebral vein got wounded, giving rise to alarming hæmorrhage for a moment, which, however, was arrested by a gauze tampon. Two further lines of treatment suggested themselves—viz., either to amputate at the shoulder-joint and follow up the axillary artery, and hope in this way to find the site of injury, or to incise the tumour, turn out the clots, and endeavour to secure the injured vessel. This, with its obvious dangers, was considered the better procedure; consequently, after resecting the remainder of the inner broken fragment, the tumour was incised, the clots turned out, and the fingers quickly thrust down towards the artery, which was felt and grasped by the finger and thumb, in this way arresting the rush of blood until the vessel could be controlled by proximal pressure from without. The clots and blood were then sponged out of the space, when the vessel could easily be seen with a small hole in its upper and anterior wall, evidently produced by the sharp spiculum of bone shown in the skiagram. An attempt to pass an aneurysm needle round the vessel now showed that the vein was firmly adherent to it, and as any injury to it was considered likely to necessitate immediate amputation, under the circumstances it was necessary to place forceps on the vessel. One forceps was applied internal to the opening, one over the opening, and one internal to it. The opening seemed to be in the middle of the third stage, and there were no vessels to be seen coming off. The inner end of the wound was sutured and the outer plugged with gauze to steady the forceps, after which the ordinary dressings were applied. The arm was supported on pillows and enveloped in wool. Recovery was rapid and uneventful. The forceps were removed on the twelfth day, after which the wound quickly closed. The temperature never rose above normal. As far as Mr. Taylor could find from an extensive perusal of the literature of the subject for the past century, in both the English and French languages, he could find only four authentic records of injury to the subclavian artery produced by a fractured clavicle, and one case in which an aneurysm of the innominate, arising some months subsequent to fracture of the right clavicle, was

ascribed to this injury. The four cases of injury to the subclavian were from fractures produced by some direct violence, and all were fatal. In his case the fracture was due to indirect violence and terminated successfully.

MR. GORDON said that his chief reason for speaking was to congratulate Mr. Taylor. He disagreed with his statement that the paralysis was due to deprivation of blood. He thought the paralysis was due to pressure or traction during the operation; and, further, he (Mr. Gordon) was of opinion that the prognosis with regard to the paralysis was very good.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—D. J. CUNNINGHAM, M.D., F.R.C.S.I., F.R.S.

Sectional Secretary—WILLIAM TAYLOR, M.B., F.R.C.S.I.

Friday, June 5, 1903.

WILLIAM R. DAWSON, M.D., in the Chair.

The Mechanical Structure of Bone stereoscopically demonstrated by X-rays.

DR. W. S. HAUGHTON, with PROFESSOR A. F. DIXON, D.Sc., brought forward a communication. The authors claimed that this method possessed the following advantages:—(1) It is readily applied, because they found it possible to examine the entire human skeleton in eight days with some monkeys' and birds' bones added for comparison; (2) it requires no special preparation of the bones, which may be recent or old, dirty or cleaned; (3) it does not damage the specimen; (4) it gives a more perfect reproduction of bone structure than any other method; (5) it lends itself to demonstration for students; (6) it lays the foundation on which to build intelligent arguments as to the site and place of fracture in bones. The method shows well, not only the longitudinal and transverse lamellæ in cancellous tissue, but also in big bone systems of right and left-handed intersecting spiral lamellæ. These spiral lamellæ are seen in all tubular bones, and are best marked where these bones curve, as in the upper end of the femur and humerus, clavicle, neck of ribs and transverse processes of vertebræ. The apparatus used was the very ingenious Röntgen stereoscope devised by M'Kenzie-Davidson.

On Long Vertical Sections of the Adult Human Body made without Freezing, with exhibit of Photographs.

PROFESSOR FRASER gave a *résumé* of his method of cutting in various planes serial sections of the adult human body without freezing, but after hardening with a modified solution of formalin. He had described his method to the Section in 1899, and had then shown a series of transverse sections of the adult made from head to foot at intervals of about one inch. Since that date he had cut a number of bodies at various ages in the median longitudinal plane, and he showed to the meeting an adult which had been cut over three years ago, and the body of a child about three years of age which he had cut the day before. His habit was to outline the median plane—the body lying on its face—with an aniline pencil from the coccyx to the glabella. Then a sharp knife was passed through the soft structures from the anal opening to the point of the coccyx, thence along the median line through the soft parts until the point of the knife was stopped by the back of the coccyx, the spines of the vertebræ, and the bony vault of the skull. A fine saw with a movable back, made by Weiss for the purpose, was now introduced at the coccyx and made to divide the vertebral column from below upwards, the point of the saw never passing deeper than the front of the bodies of the vertebræ. Then it was passed through the cranial vault, the contents of the cranial cavity, and a certain length along the cranial bone. It was then withdrawn, as the body had now to be turned on its back, and the cutting finished from the front. The median plane was outlined with the pencil from the pubes to the glabella. The knife now thus passes through the soft parts from the glabella to the xiphoid appendage, until stopped mainly by the two jaw bones, the body of the hyoid, and the front of the sternum. The saw was now introduced at the cranial vault, where it had previously ended, and was carried down through the bones of the face and part of the cranial bone left uncut when sawing from behind. The body of the hyoid and sternum are then divided, and the saw is not further required unless the cartilage at the symphysis pubis has become in part ossified, when it has to be passed through it. In the case of the male a couple of knitting needles are passed down the spongy part of the urethra, and the knife is guided between them from the glans to the raphé of the perineum and the symphysis pubis. The knife is then carried rapidly headwards through the abdominal

wall and through the abdominal viscera, thence through the contents of the thoracic cavity, the point of the knife running between the divided vertebræ behind and the blade through the soft parts in front. The two halves of the body now fall apart and the median long section is complete. Each half is then washed in a tank of water, the coagulum removed from the heart and blood-vessels, and the contents of the alimentary canal removed under the water tap. The specimens in Professor Fraser's judgment are very perfect and instructive when everything has gone well.

PROFESSOR FRASER also exhibited a large Atlas of photographs of median longitudinal and other sections, and of the serial dissection through the thorax and abdomen, both from front and back, made after the manner published in his book, showing those of the head and neck.

Undescended Ovaries in an Adult Female.

PROFESSOR FRASER then showed a specimen of undescended ovaries and Fallopian tubes, which he found in a corpulent female between fifty and sixty years of age, with no external evidence of ever having been pregnant. On the left side the tube and ovary lay behind the commencement of the sigmoid flexure, and slightly below the lower end of the kidney. On the right side the tube and ovary lay behind the cæcum and lower end of the ileum. On both sides what would have become broad ligament was fixed to the posterior abdominal wall. The uterus was apparently normal in its usual position at the back of the bladder, and from its fundus on either side the two Fallopian tubes passed over the pelvic brim up the posterior abdominal wall, as already stated.

Effects of the Administration of Arginin.

PROFESSOR W. H. THOMPSON made some preliminary observations on this subject.

Effects of Pituitary Feeding on Metabolism.

PROFESSOR W. H. THOMPSON made a communication on the effects of pituitary feeding on metabolism.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D., Univ. Dubl. ;

F.R.C.P.I. ; F.R. Met. Soc. ;

Diplomate in State Medicine and Ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS.

For four weeks ending Saturday, June 20, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended June 20, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 19.1 per 1,000 of their aggregate population, which, for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, June 20, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	May 30	June 6	June 13	June 20			May 30	June 6	June 13	June 20	
22 Town Districts	21.4	18.8	20.1	19.1	19.9	Lisburn	18.2	18.2	18.6	18.2	17.1
Armagh	20.6	13.7	13.7	13.7	15.4	Londonderry	12.6	21.4	16.4	12.6	15.8
Ballymena	19.2	19.2	14.4	14.4	16.8	Lurgan	26.6	13.3	31.0	26.6	24.4
Belfast	21.5	16.4	19.2	20.4	19.4	Newry	37.8	16.8	0.0	0.0	18.7
Clonmel	5.1	15.4	41.0	0.0	15.4	Newtownards	40.1	40.1	28.6	11.4	30.1
Cork	19.9	20.5	20.5	17.8	19.7	Portadown	20.7	10.8	25.8	31.0	22.0
Drogheda	24.5	20.4	16.3	16.3	19.4	Queestown	0.0	6.6	13.2	13.2	8.3
Dublin (Reg. Area)	22.2	22.7	22.4	19.7	21.7	Sligo	33.6	24.0	19.2	28.8	26.4
Dundalk	19.9	8.0	16.0	27.9	18.0	Tralee	42.3	10.6	21.1	31.7	26.4
Galway	15.5	19.4	7.8	7.8	12.6	Waterford	19.5	7.8	11.7	19.5	14.6
Kilkenny	24.6	19.7	44.2	14.7	25.8	Wexford	23.3	32.7	9.3	9.3	18.7
Limerick	17.8	6.8	17.8	21.9	16.1						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, June 20, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in fifteen of the districts to 10.3 in Portadown—the 6 deaths from all causes registered in that district including 2 from measles. Among the 140 deaths from all causes in Belfast are 4 from measles, 3 each from whooping-cough, enteric fever and diarrhoea. The 26 deaths in Cork include one from whooping-cough and one from diarrhoea.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, June 20, amounted to 200—103 boys and 97 girls; and the deaths to 151—73 males and 78 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 20.8 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the Area, the rate was 19.7 per 1,000. During the twenty-four weeks ending with Saturday, June 20, the death-rate averaged 26.3, and was 1.9 below the mean rate for the corresponding portions of the ten years 1893–1902.

Three deaths from small-pox were registered during the week of persons aged 3 months, 7 years, and 47 years, respectively—the two former were reported “never vaccinated,” and in reference to the last it was stated that there was “no primary cicatrix.” There were 28 deaths from small-pox registered during the 15 weeks ending Saturday, June 20. Measles and scarlet fever each caused one death. One death from parotitis, 2 deaths from influenza, 6 deaths from whooping-cough, and one death from diphtheria were also registered.

Tuberculous disease caused 26 deaths; of these 16 were due to pulmonary consumption, 3 deaths were caused by tuberculous

meningitis, and 7 were caused by tuberculous disease of other organs.

One death was attributed to carcinoma, one to sarcoma, and 4 deaths were due to *malignant disease* ("cancer").

Of 7 deaths from diseases of the nervous system, 4 were due to *convulsions*. These four deaths were of children under 5 years of age.

Thirteen deaths were attributed to diseases of the heart and blood-vessels.

The 39 deaths from diseases of the respiratory system include 21 from bronchitis, 3 from croupous pneumonia, 7 from broncho-pneumonia, and 4 from *pneumonia*. The total (39) equals an annual rate of 5.4 per 1,000 of the Dublin Registration Area, the average rate for the corresponding period of the past 10 years being 3.3 per 1,000.

Two deaths were due to accidental violence.

In 7 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 5 children under one year old and the death of a person aged 68 years.

Forty-seven of the persons whose deaths were registered during the week were under 5 years of age (30 being infants under one year, of whom 8 were under one month old), and 28 were aged 60 years and upwards, including 13 persons aged 70 and upwards, of whom 4 were octogenarians.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Roantree, Acting Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast:—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended June 20, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	German Measles (Rubella)	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	May 30	13	6	-	36	-	-	13	-	4	11	9	-	10	-	91
	June 6	13	4	-	31	-	-	5	-	4	11	8	-	8	-	74
	June 13	12*	10	-	17	-	-	5	-	3	13	21	-	4	1	85
	June 20	9	2	-	17	-	-	4	-	-	4	11	1	1	-	49
Rathmines and Rathgar Urban District	May 30	-	1	-	4	-	-	-	1	-	2	-	-	-	-	8
	June 6	-	-	-	4	-	-	3	-	-	-	-	-	-	-	8
	June 13	-	-	-	3	-	-	-	-	-	1	1	-	-	-	5
	June 20	-	-	-	7	-	-	6	-	-	-	1	-	3	-	17
Pembroke Urban District	May 30	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
	June 6	1	1	-	1	-	-	-	-	-	2	2	-	-	-	8
	June 13	-	-	-	-	-	-	-	-	-	-	2	-	1	-	3
	June 20	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3
Blackrock Urban District	May 30	1	-	-	1	-	-	-	-	-	-	-	-	-	-	2
	June 6	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	June 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	June 20	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Kingstown Urban District	May 30	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
	June 6	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
	June 13	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	June 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Belfast	May 30	-	-	-	14	-	-	5	1	12	19	11	1	-	-	63
	June 6	-	-	-	11	-	-	5	-	9	31	14	-	-	-	80
	June 13	-	-	-	4	-	-	3	-	10	29	7	-	-	-	53
	June 20	-	-	-	14	-	-	3	1	19	24	6	1	-	-	66

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, June 20, 1903, 11 cases of small-pox were admitted to hospital, 10 were discharged, there was one death, and 35 patients remained under treatment at its close. Besides these there were 36 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Three cases of measles were admitted to hospital, 2 patients were discharged, and 5 cases remained under treatment at the close of the week.

Fifteen cases of scarlatina were admitted to hospital, 29 cases were discharged, there was one death, and 143 cases remained under treatment at the close of the week.

* Including one case of "Varioloid."

Nine cases of diphtheria were admitted to hospital, 3 were discharged, there was one death, and 28 cases remained under treatment at the close of the week.

One case of enteric fever was admitted to hospital, 3 cases were discharged, and 14 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 13 cases of pneumonia were admitted to hospital, 8 patients were discharged, there were 2 deaths, and 28 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, June 20, in 76 large English towns, including London (in which the rate was 13.1), was equal to an average annual death-rate of 14.3 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.0 per 1,000, the rate for Glasgow being 17.9, and for Edinburgh 16.4.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.,
Long. 6° 15' W., for the Month of June, 1903.*

Mean Height of Barometer,	-	-	-	30.082 inches.
Maximal Height of Barometer (4th at 9 a.m.),				30.505 „
Minimal Height of Barometer (18th at 9 a.m.),				29.728 „
Mean Dry-bulb Temperature,	-	-	-	55.4°.
Mean Wet-bulb Temperature,	-	-	-	51.9°.
Mean Dew-point Temperature,	-	-	-	48.5°.
Mean Elastic Force (Tension) of Aqueous Vapour,				.344 inch.
Mean Humidity,	-	-	-	78.3 per cent.
Highest Temperature in Shade (on 28th),	-			72.7°.
Lowest Temperature in Shade (on 14th),	-			41.0°.
Lowest Temperature on Grass (Radiation) (14th),				38.6°.
Mean Amount of Cloud,	-	-	-	64.7 per cent.
Rainfall (on 13 days),	-	-	-	2.494 inches.
Greatest Daily Rainfall (on 22nd),	-	-	-	.838 inch.
General Directions of Wind,	-	-	-	N.E., N.

Remarks.

The month of June, 1903, was rendered memorable by the occurrence of torrential rains in the South of England between the

8th and the 19th, when generally dry but cold weather held in Ireland, Scotland, and the North of England. In the period named 6.17 inches of rainfall were measured at Brixton in the South of London, and amounts of over an inch were collected in the gauge on two consecutive days—1.03 inches on the 13th, and 1.15 inches on the 14th. During the same time the rainfall in the City of Dublin was only .330 of an inch, and over the greater part of Ireland still less precipitation took place. The cold weather culminated on the 20th, when the thermometer sank to 30° at Wick and Nairn, 28° at Braemar, and 27° at Lairg. On Monday, the 22nd, a complete change in the distribution of atmospheric pressure, and consequently in the weather, took place. Shallow depressions over France and the South of England gave place to high pressures, while depressions passed northwards outside the West Coasts of Ireland and Scotland. The weather, therefore, became very fine and warm in England, but fell into a cloudy, rainy and thundery state in Ireland and Scotland. In London the thermometer, which had not exceeded 53° in the shade on Saturday, the 20th, rose to 84° on both Saturday and Sunday, the 27th and 28th. In Dublin, on the other hand, in the week ended the 27th, the rainfall amounted to 2.161 inches on 6 days. As in June, 1902, winds from polar quarters prevailed throughout the greater part of the month. During the last 10 days, however, southerly winds were observed. The duration of sunshine was estimated at 167.5 hours, giving a daily average of 5.6 hours. The percentage of cloud was high for June—64.7 per cent.

In Dublin the arithmetical mean temperature (56.4°) was below the average (58.0°) by 1.6°; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 55.4°. In the thirty-eight years ending with 1902, June was coldest in 1882 (M. T.=55.8°) and 1879 ("the cold year") (M. T.=55.9°). It was warmest in 1887 (M. T.=62.3°); in 1896 (M. T.=61.4°); and in 1899 (M. T.=61.3°). In 1902 the M. T. was 56.7°.

The mean height of the barometer was 30.082 inches, or 0.165 inch above the corrected average value for June—namely, 29.917 inches. The mercury rose to 30.505 inches at 9 a.m. of the 4th and fell to 29.728 inches at 9 a.m. of the 18th. The observed range of atmospheric pressure was, therefore, only 0.777 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 55.4°, or 3.7° above the corresponding M. T. for May, 1903. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .465), the value was 56.0°, or

1.5° below the average mean temperature for June, calculated in the same way, in the thirty years, 1871–1900, inclusive (57.5°). The arithmetical mean of the maximal and minimal readings was 56.4°, compared with a thirty years' average of 58.0°. On the 28th the thermometer in the screen rose to 72.7°—wind, W.; on the 14th the temperature fell to 41.0°—wind, N.N.E. The minimum on the grass was 38.6° on the 14th.

The rainfall amounted to 2.494 inches on 13 days. The average rainfall for June in the thirty-five years, 1866–1900, inclusive, was 1.920 inches, and the average number of rainy days was 15. The rainfall, therefore, was above the average while the rainy days were below it. It is, however, to be noted that 63 per cent. of the whole precipitation for the month occurred on two days—the 22nd and 24th. In 1878 the rainfall in June was very large—5.058 inches on 19 days; in 1879, also, 4.046 inches fell on 24 days. On the other hand, in 1889, only .100 inch was measured on 6 days. In 1887 the rainfall was only .252 inch, distributed over 5 days. In 1902, 2.371 inches fell on 17 days.

High winds were noted on only 6 days, and never reached the force of a gale. The atmosphere was foggy on the 24th. A solar halo was seen on the 29th. Temperature reached or exceeded 70° in the screen on only two days—the 5th and 28th, compared with only one day in 1901, and 8 days in 1902. Lightning was seen on the night of the 28th, and thunderstorms occurred on the 14th, 24th, and 28th.

The rainfall in Dublin during the six months ending June 30th amounted to 15.054 inches on 108 days, compared with 12.344 inches on 98 days in 1902, 9.352 inches on 80 days in 1901, 13.090 inches on 114 days in 1900, 11.295 inches on 95 days in 1899, 12.115 inches on 98 days in 1898, 13.950 inches on 113 days in 1897, 7.854 inches on 84 days in 1896, 12.282 inches on 80 days in 1895, 14.361 inches on 109 days in 1894, 9.624 inches on 78 days in 1893, only 6.741 inches on 67 days in 1887, and a thirty-five years' average of 12.060 inches on 95.0 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 1.785 inches on 11 days, compared with 3.341 inches on 16 days in June, 1902. Of this quantity .760 inch fell on the 25th. The total fall since January 1 has been 17.440 inches on 90 days, compared with 15.091 inches on 84 days in the first six months in 1902, 13.670 inches on 75 days in those of 1901, 18.191 inches on 105 days in those of 1900, 19.510 inches on 95 days in 1899,

13.500 inches on 88 days in 1898, 18.125 inches on 106 days in 1897, 7.356 inches on 61 days in 1896, 14.270 inches on 67 days in 1895, 17.381 inches on 96 days in 1894, and 11.776 inches on 75 days in 1893.

Dr. Arthur S. Goff reports the rainfall at Lynton, Dundrum, Co. Dublin, as 1.54 inches on 12 days, compared with 3.08 inches on 19 days in 1902 and 1.71 inches on 13 days in 1901; the greatest daily fall being .34 inch on the 26th. The mean shade temperature was 56.4°. The thermometric range was from 44° on the 14th and 21st to 72° on the 28th. A thunderstorm occurred on the 24th.

The rainfall at Cloneevin, Killiney, Co. Dublin, was 1.64 inches on 12 days. The maximal fall in 24 hours was .66 inch on the 22nd. The average rainfall in June in the 18 years (1885–1902) was 1.833 inches on 13.3 days. The total fall at Cloneevin since January 1, 1903, amounts to 13.85 inches on 103 days, the average for the first six months of 18 years being 11.596 inches on 87.7 days.

At the Railway Hotel, Recess, Connemara, Co. Galway, the rainfall was 1.525 inches on only 9 days. On the 27th, .360 inch fell; and on the 23rd, .320 inch. Beautiful weather prevailed up to the 21st.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health for Kingstown, Co. Dublin, reports that the mean temperature at that health resort was 55.4°, the extremes being—highest, 72.5°, on the 29th; lowest, 42°, on the 14th. At Bournemouth the mean was 57.3°, the extremes being—highest, 79°, on the 29th; lowest, 42°, on the 4th and 21st. These figures confirm the statement in former reports that the relative condition of temperature at Kingstown and at Bournemouth become reversed at or about the summer solstice, &c. The mean daily range of temperature at Kingstown was 11.1°, and at Bournemouth 16.0°. The mean temperature of the sea at Sandycove bathing-place was 54.4°. The rainfall was 1.36 inches on 12 days at Kingstown, and at Bournemouth 2.38 inches on 9 days. The total duration of bright sunshine at Kingstown was 159.2 hours, whereas it was 164.7 hours at the Ordnance Survey Office, Phoenix Park, 155.3 hours at Parsonstown, 186.2 hours at Valentia, 203.6 hours at Southport, and 179.6 hours at Eastbourne.

PERISCOPE.

THERAPEUTIC PROPERTIES OF BONE MARROW.

A SUGGESTIVE paper on some therapeutic properties of bone marrow appeared in the number of *The Journal of Cutaneous Diseases* for May, 1903. The author, Chalmers Watson, M.B., F.R.C.P.Ed., published in the *British Medical Journal* of March 22, 1902, a preliminary communication on the treatment of deafness of middle ear origin, the basis of the treatment being the use of a preparation of bone marrow. It was there pointed out that the use of this preparation in cases of chronic non-suppurative middle-ear disease was a particular application of a general theory regarding the function of the bone marrow. In broad outline this theory is that the bone marrow produces an internal secretion of vital importance in the economy; that this substance is prophylactic against the injurious action of various bacteria, which in health exist as saprophytes in different tissues; and that its defective production is liable to be followed by pathogenic action of these micro-organisms. The results of this pathogenic activity vary much in different subjects, in accordance with *the all-important factor of individual reaction*. As the main sites of these bacteria are the respiratory tract, skin, alimentary canal, and vagina, it follows that disease will be more or less directly associated with one or other of these surfaces as the main source of infection. The object of the author's present paper is to place on record the results of treatment by bone marrow of a case of lupus vulgaris in a boy aged nine years, who had suffered from a patch of lupus on the left cheek of about five years' duration. The hereditary history showed a marked proclivity to tuberculosis, five aunts and two cousins having died from tuberculous disease. The situation and character of the lesions are well shown in a series of five photographs taken before, during, and after treatment, which was carried out as follows:—

1. The part was bathed with hot water in order—(a) to remove the crusts as far as possible; and (b) to stimulate the local circulation. The operation, which was invariably carried out by the author himself, was practised daily, and took from five to seven minutes. The removal of the crusts revealed a typical lupoid surface, which was very irregular in character, being deeply pitted at some parts and markedly raised in others, and

studded with yellowish nodules, the whole surface showing a tendency to bleed. In the middle of the lower third there was a small whitish spot, which apparently represented an area of central healing.

2. The surface was then carefully dried with a clean piece of white cloth, and myelocene, previously liquefied and warmed, was afterwards applied with a pipette. About one drachm was used, this being applied in relays, the oil being rubbed into the part as thoroughly as the tenderness of the surface would allow.

The main points to which Dr. Chalmers Watson would draw attention are the following :—

1. The bone marrow contains a substance, or substances, of distinct therapeutic value in the treatment of some skin affections.

2. The bone marrow employed is not "red marrow," so-called, but the general marrow from the shaft of the long bones. The preparation employed is an ethereal extract termed "myelocene," prepared for the author in the manner described in the *British Medical Journal*, March 20, 1902, by J. F. Macfarlane & Co., Edinburgh.

3. The utmost care is necessary in the selection and preparation of this substance, and much investigation is yet required before a fully reliable standard preparation is permanently available. Equal care and attention are called for in the local application of myelocene to abraded surfaces.

4. Myelocene is not antiseptic in the ordinary sense of that term : it cannot be applied to an abraded surface in the manner of an ordinary ointment. This difficulty may be overcome by the addition of other substances with known antiseptic properties—e.g., boric acid.

5. A study of the facts here recorded alongside those previously described, suggests that the full elucidation of the problems presented will require combined investigation on the part of physiologists, pathologists, and clinicians, attention being particularly directed to the question of general and local immunity.

VACCINATION AFTER SMALL-POX.

UNDER the above title the *British Medical Journal* of January 31, 1903, published some facts proving the susceptibility to vaccination of individuals who had previously suffered from small-pox. In the *Australasian Medical Gazette* for May 20, 1903, Dr. Ernest Sydney Hawthorne, L.R.C.P.I., F.R.C.S.I., of Mudgee, New

South Wales, publishes the following facts, observed by himself whilst House Physician to the Small-pox Hospital in Liverpool, England, during the great epidemic of 1893 and 1894. During his tenure of office there Dr. Hawthorne had under his care upwards of 400 cases, so that there were ample opportunities of studying the disease from every standpoint. As an experiment he first began vaccinating with pure calf lymph all patients admitted suffering from variola; but later he vaccinated all such cases, as a matter of duty, with the following result:—In the unvaccinated, and during the early stages of prodromal rash and papular eruption, vaccination was performed on the arms or other suitable part with pure calf lymph. If the vaccination was successful the case was converted from a very serious and probably fatal one into a harmless and modified variola. The disease ran through its usually severe stages until the time of pustulation, when like a charm the opaque vesicles would become less tense, wrinkle, and finally desiccate without any sign whatever of secondary fever. On the other hand, the vaccination eruption would pass through its stages with the usual exactitude and severity. Although the variola virus has gained two or three days' start over the vaccinia virus, the latter overtakes the former and becomes pustular in time, as it were, to prevent the secondary fever, and thus abort the attack. His failures were very few, and those he attributed to inferior quality of the lymph used or too late application of it to the patient, as when vaccinating in the commencing vesicular or vesicular stages no modification of the variola whatever resulted, and the vaccination did not take. There is no keener battle to be witnessed than that between the virus of small-pox and vaccinia. If the latter is successful, on the eighth day it stands alone, triumphant, angry, the victor, surrounded by the former, vanquished and annihilated.

CONGENITAL SINGLE KIDNEY.

DR. RAMON GUTTERAS, of New York, has (*St. Louis M. and S. Jour.*) placed three cases of congenital single kidney on record. The first case was that of a labourer twenty-one years old, on whom he operated for tubercular disease of the kidney. On the day following the removal of the diseased kidney he passed ten ounces of urine. After this not a drop passed either spontaneously or by catheterisation. He died on the eighth day after the operation. He remained clear in his mind up to the day before his death. There were no uræmic convulsions. The autopsy revealed the

absence of both kidneys, the left one having been removed. There is no reference made to the presence or absence of the right ureter in this case. Five months after, on the 24th of April, 1902, the second case came to hospital. The patient was a fireman, thirty years old. He was operated on for purulent distention of his left pleura. He died two weeks afterwards of dyspnoea. The autopsy revealed congenital absence of the right kidney and ureter. The third case was that of a labourer who entered hospital on the 21st of August, 1902. He died two days afterwards of typhoid. The autopsy revealed the congenital absence of the left kidney and ureter. Morris considers that one kidney is congenitally absent in 2,400 bodies.

PARTIAL SYMPHYSEOTOMY.

DIEHL (*Münch. med. Woch.*) reports a case in which a narrow pelvis prevented the passage of a foetal head after cephalotripsy. The upper half of the symphysis was then cut through, and the head passed easily.

CORYZA.

BRAND'S remedy, frequently inspired, sometimes aborts a threatened attack of coryza. It consists of carbolic acid and solution of ammonia, each five parts, alcohol two parts, and distilled water fifteen parts, mixed. Or by a single intranasal spraying with the following:—Ichthyol, five parts, alcohol and ether, fifty parts each, by weight.—*Rev. Méd. de la Suisse.*

FIFTH INTERNATIONAL CONGRESS OF DERMATOLOGY.

THE Fifth International Congress of Dermatology will be held in Berlin from the 13th to the 17th of September, 1904, under the presidency of Professor Lesser. The subjects chosen for debate are:—(1) The Syphilitic Affections of the Circulatory Apparatus; (2) The Skin Affections in Errors of Metabolism; (3) Epitheliomata and their Treatment. The General Secretary is Dr. O. Rosenthal, Berlin, W., Potsdamerstrasse, 121 G. The Secretary for Great Britain is Dr. Arthur Whitfield, 21 Bentinck-street, Manchester-square, London, W.

HOURLY GLASS STOMACH.

IN a recent paper on diseases of the stomach Dr. Moynihan, Leeds, writes that he does not think there is any ground for thinking that hour-glass contraction of the stomach is ever congenital. There is no inherent probability in its being so, but it lacks proof.

He considers that the condition is acquired. It is caused by—(1) perigastric adhesions; (2) ulcer, with local perforation and anchoring to the adjoining parts; (3) chronic ulcer at or near the middle of the organ; (4) malignant disease.

ORBITAL CELLULITIS FOLLOWING SCARLATINA.

TWO cases of this uncommon complication are reported by Dr. Burton K. Chance. The course in each was rapid, and terminated fatally—one child dying on the seventh day after the child had become necrotic. In both cases serous infiltration was found; no pus was present.

PLEURITIS WITH EFFUSION.

DR. SCHIGAYEFF (*Rons. Med. Viest.*) treats pleuritic effusion, after the microscope had shown pus in the fluid, by the subcutaneous injections of pleuritic fluid obtained from the same patient. The injection was given with a Jacquet syringe. The first injections were made in the interscapular region, the latter in the axillary line. The dose varied from one to four cubic centimetres. The patient usually felt better after the second injection, temperature fell, urine increased, and the exudates were absorbed.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Soluble Salts of Manganese.

RECENT experiments have afforded increased evidence that manganese possesses useful qualities in the treatment of debilitating diseases associated with anæmia. It appears, however, that the nature of the combination in which the manganese is employed exercises an important influence upon the therapeutic effects. The preparation known as manganese dioxide, which has been used to some extent in the past, and often in a very impure condition, is quite insoluble in water, and only very slightly soluble in dilute acids. Its administration, therefore, has frequently been unsatisfactory. Some experiments conducted in the Wellcome Chemical Research Laboratories, with a view of preparing a soluble salt of manganese of a stable character, have proved highly satisfactory. As a result of these investigations, Messrs. Burroughs, Wellcome & Co., of London, Sydney, and Cape Town, have been able to manufacture, and are now issuing, a soluble citrate of manganese. In addition to this preparation, they are manufacturing two soluble compounds of manganese and iron. In the treatment of anæmia in which iron alone has failed, these new

compounds appear to be admirably adapted to the needs of those practitioners who, instead of passing directly to the use of manganese, prefer to give intermediately a mixture of the two metals.

Manganese Citrate (Soluble), "Wellcome" Brand.—This organic combination contains about 12 per cent. of manganese. It is in the form of nearly colourless scales, which are readily soluble in water. Dose : Three to ten grains, after food. The citrate is issued in bottles containing 1 oz. and 4 oz. Manganese citrate (soluble) is also issued as a "tabloid" product, in two strengths—viz., gr. 3 (0.194 gm.) and gr. 5 (0.324 gm.), in bottles of 25 and 100.

Manganese and Iron Citrate (Soluble), "Wellcome" Brand.—This is a scale preparation containing about 7 per cent. of manganese and 14 per cent. of iron in organic combination, and is readily soluble in water. Dose : Three to ten grains, after food. It is issued in bottles containing 1 oz. and 4 oz. Manganese and citrate (soluble) is also issued as a "tabloid" product, in two iron strengths—viz., gr. 3 (0.194 gm.) and gr. 5 (0.324 gm.), in bottles of 25 and 100.

Manganese and Iron Phosphate (Soluble), "Wellcome" Brand.—This scale preparation contains about 7 per cent. of manganese and 14 per cent. of iron, and is readily soluble in warm water. Dose : Three to ten grains, after food. It is issued in bottles containing 1 oz. and 4 oz. Manganese and iron phosphate (soluble) is also issued as a "tabloid" product, in two strengths—viz., gr. 3 (0.194 gm.) and gr. 5 (0.324 gm.), in bottles of 25 and 100.

"Soloid" Romanowsky Stain (Leishman's Powder).

THIS is the most recent addition to the useful series of microscopic stains issued by Messrs. Burroughs, Wellcome & Co., Snow Hill Buildings, London, E.C., under the "soloid" brand, and it presents a convenient means of employing Leishman's modification of Romanowsky's stain. The strength of the soloid is 0.015 gm. (gr. 0.231). One "soloid" product is to be dissolved in 10 cc. of pure methyl alcohol. A few drops of the solution should be run on to the blood film, and allowed to remain four or five minutes. Then double the volume of distilled water is to be dropped on to the film. This will bring out the red tint in the corpuscles, and a blue colour in the nuclei. After another two minutes staining the film may be washed in distilled water, dried in air, and mounted in xylol balsam. "Soloid" Romanowsky stain is issued in tubes containing six.

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MEDICAL SCIENCE.

SEPTEMBER 1, 1903.

PART I.

ORIGINAL COMMUNICATIONS.



ART. VI.—*Traumatic Aneurysm of the Left Subclavian Artery Produced by Fracture of the Clavicle.** By WILLIAM TAYLOR, B.A., M.B. Dubl. Univ., F.R.C.S.I; Member of the Council, Royal College of Surgeons, Ireland; Surgeon to and Lecturer on Clinical and Operative Surgery Meath Hospital and Co. Dublin Infirmary; Surgeon to Cork-street Hospital, &c., &c.

ANEURYSM of the subclavian artery, from its comparative rarity, always possesses a certain degree of interest. When that aneurysm is the result of a fracture of the clavicle it becomes at once a condition of exceeding rarity, consequently this fact renders an apology from me for bringing the notes of the following case before the readers of this Journal quite unnecessary:—

M. J., a pensioner, aged sixty-two years, was admitted into the Meath Hospital, under my care, on October 13th, 1902. His history, prior to September 28th—that is, until a fortnight before admission—was that of a healthy man, his only sickness being a few attacks of malaria. There was no history of syphilis, and before his accident there had never been anything wrong with the arm or shoulder.

*Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, May 15th, 1903. [The discussion on this paper will be found at page 142.]

On the evening of September 28th, when stepping off a dray, he slipped and fell outwards on his left shoulder. Next day, notwithstanding the fact that his shoulder was swollen and paining him considerably, he went to his work, which consisted in wheeling gravel in a wheelbarrow, but on the second day, on account of the pain, he was unable to work, and came to the Meath Hospital, where the Resident Pupil on duty treated him in the ordinary way for a fractured collar-bone. The swelling was noticed, but thought to be the result of using his arm freely for almost forty-eight hours after fracturing the clavicle.

On October 13th I saw him, and feeling pulsation, which was indeed distinctly visible in the swelling, had him admitted at once into hospital. On examination, the swelling was seen to chiefly occupy the lower part of the left posterior triangle of the neck, but it extended forwards underneath the sterno-mastoid muscle, and downwards below the clavicle, overlapping the broken fragments. It was most prominent just at the site of fracture, at which point the coverings were very thin and the pulsation most distinct. The tumour felt fairly hard all over, except just at its most prominent point, where it was soft and fluctuated distinctly. A loud bruit was easily heard all over it, and my medical colleagues were of the opinion that there was a diastolic aortic murmur. There were no evidences of any impediment of the venous return, but the patient complained of pain, tingling, and numbness down the arm and in the hand. There was no loss of power in the hand or forearm. The radial pulse on the affected side was much smaller than on the right side. There were some evidences of general atheroma, but the urine was free from albumen. My colleague, Mr. Lane-Joynt, kindly took a skiagram for me, which shows something of the outline of the tumour as well as the interesting condition of the broken fragments. A spiculum of bone is distinctly seen projecting downwards at right angles from the inner end of the outer fragment. It was also noticed that the pulsation was not nearly so well marked in the sitting as in the recumbent position, while in the upright position it could not be detected at all, though the bruit could be heard in this position, but only faintly. The diagnosis was that of aneurysm of the subclavian, produced by the spiculum of bone seen in the skiagram projecting towards the vessel.

The treatment for the next fortnight consisted in absolute rest, restricted diet, and iodide of potassium, but, at the end of this

time, as the aneurysm was only increasing in size and threatening to rupture or suppurate (for the skin over its most prominent part, and for some distance around, had become red and oedematous), it was decided to endeavour to place a temporary ligature on the first stage of the subclavian and then open the sac, turn out the clots and deal directly with the site of the injury. To do this, an incision was made along the inner third of the clavicle as far as the sterno-clavicular articulation; another incision was carried from this point upwards along the inner border of the sterno-mastoid for about two and a half inches, the flap thus marked out being reflected outwards. With a wire saw the clavicle was divided about two inches from its inner end, and the inner portion resected. A very long, and I may say dangerous, dissection, in a space full of important structures and considerably diminished by the encroachment of the now forcibly pulsating, thin-walled tumour, failed to distinctly expose the first stage of the artery. Wound of the vertebral vein giving rise to alarming hæmorrhage for a moment or two put an end to any further attempt to secure the artery in this stage. Gauze packing arrested the hæmorrhage from the vertebral vein. Three courses were now open to adoption:—The first was to send the patient back to bed to die—a course which certainly did not appeal to me; the second was to amputate at the shoulder-joint and then follow up the axillary artery and hope in this way to reach the site of injury, but I must say it did not seem to offer any bright prospect; the last, with its obvious risk, was to open up the sac, turn out the clots, and make an attempt to secure the injured vessel. Before doing this the portion of clavicle corresponding to the middle third of the bone was removed, so that direct proximal pressure might possibly be applied from without on the vessel while the clots were being turned out. The tumour was then freely incised and the clots turned out. The fingers were quickly pushed downwards in the direction of the artery, which was grasped by the thumb and index finger, thus arresting the gush of blood until proximal pressure got the artery controlled. The space was then sponged clean of blood and clots, after which the artery could be easily seen lying at the bottom with a small opening in its upper and anterior aspect. The opening was of such size as would have admitted a large sized knitting-needle, and seemed to be about the middle of the third stage of the artery. There were no branches seen coming off this stage

of the artery. An attempt to pass an aneurysm needle round the vessel now showed the vein to be firmly adherent, and as it was thought that any injury to the vein, necessitating its ligature also, in a patient so old and with diseased vessels, would in all probability demand amputation—a procedure which would likely be fatal—it was decided to apply forceps to the vessel. One forceps was applied external to the opening, one over the site of the opening, and one internal to it. Gauze was then packed into the space round the forceps so as to steady them. The inner part of the wound was closed with a small capillary drain in its inner angle. The shoulder and neck were enveloped in dressings, and the patient put back to bed. The arm was supported on pillows and wrapped up in warm wool. The operation lasted over two and a quarter hours. The subsequent progress is easily told. The temperature never once rose above the normal for over three weeks, when it ran up, due to an attack of malaria, but a few doses of quinine brought it down. The forceps were removed on the 12th day, after which the wound rapidly granulated up.

The patient is now walking about quite well. I regret to say he has not yet recovered complete use of his arm, but this I attribute mainly to defective blood supply to his muscles on account of the diseased arteries. He never complained of any pain in the arm or hand subsequent to the operation, and from the time he recovered consciousness after the anæsthetic seemed to have complete sensation. Power is gradually returning, for he can now flex and extend his fingers and wrist as well as flex the forearm upon the arm.

With regard to complications attending fracture of the clavicle all authorities express but one opinion, viz. :—"That they are rarely, if ever, seen." It certainly seems strange that such an immunity should exist when we reflect on the proximity of the subclavian artery and vein, the suprascapular artery, the apex of the lung, and the cords of the brachial plexus, and at the same time consider the amount of displacement of the fragments that we frequently see. So far as I have been able to learn from a perusal of the literature of this subject, any complications that have occasionally been observed have occurred chiefly in those cases in which the fracture was produced by direct violence—generally severe—such as the passage of the wheel of a cart over the shoulder, a railway

smash, or due to lesions produced by a rifle bullet. In these latter cases the complications have been attributed rather to the bullet than to the fragments of the broken bone. It has been furthermore observed that some of these cases, which were carefully examined (*post mortem*), had also a fracture of the first rib or upper three or four ribs, of which the first was one. The complications in such cases were mainly attributed to the fracture of the ribs and not to the fracture of the clavicle.

So far as I have been able to discover in my perusal of the literature of this subject in both French and English I have been able to discover only the following as complications of a fractured clavicle : -

Ten *authentic cases* of injury (immediate or remote) to the neighbouring nerves.

Four *authentic cases* of wound of the subclavian artery. My own case makes the fifth. Here I would point out that the others arose in connection with fractures produced by direct violence, and all terminated fatally, whereas mine arose from a fracture produced by indirect violence, and has, fortunately, ended in recovery.

One case of alleged injury to the innominate artery leading to the development of an innominate aneurysm. It is more than probable that the aneurysm existed prior to, and possibly may have predisposed to, the production of the fracture.

Four cases of injury to the subclavian vein.

Two cases of injury to the internal jugular vein.

One case of aneurysm of the acromial branch of the acromio-thoracic axis of arteries.

Five cases of wound of the lung associated with emphysema.

ART. VII.—*Vichy.* By JAMES CRAIG, M.D. Dubl., F.R.C.P.I.; Physician to the Meath Hospital and County Dublin Infirmary.

A BRIEF holiday during the present summer gave me an opportunity of becoming personally acquainted with the varieties of treatment and general surroundings that obtain in the reputable health-resort of Vichy. I did not remain for a sufficient length of time to observe the effects of the cure in any specified cases, but I had while there all the advantages that could be gained by free access to the establishment through the kindness of the directors of the company; and, furthermore, I had the pleasure of meeting and receiving information from several kind-hearted fellow-practitioners. In what I am about to write nothing will be attempted beyond a short sketch.

The famous thermal station of Vichy is situated in the centre of France, on the banks of the Allier, 846 feet above the level of the sea, and within six hours of Paris by rail. The company to which the State has leased the springs is wealthy and enterprising, and the present directors have spared neither money nor personal energy in placing Vichy at the head of thermal watering-places in France. In every department the object has been to aim at conditions that might be regarded as models in their way. The methods used in supplying pure mineral water to the public, the luxury and endless variety of the baths, the mechano-therapeutic establishment, the electrical appliances, and finally the sources of amusement—all of them point to masterly direction.

The season at Vichy lasts from the middle of May to the end of September, but a course of three weeks' treatment in drinking the waters, or in taking the baths, or with both combined, is a fair average of the time spent by the sojourner in search of health. Let it be noted, however, that during the months of July and August the atmospheric temperature is sufficiently high to make the early mornings and the evenings the most enjoyable parts of the day for natives of more northerly climates. It is obvious, therefore, that where a selection of season is possible, these

months should not be chosen if enjoyment is part of the northern visitor's programme. On the other hand, my visit was made during the first week in August, and I cannot say that the heat was oppressive.

The mineral waters of Vichy are of the typical alkaline kind, and are rich in free carbonic acid and bicarbonate of sodium—the average amount of the latter being close on 90 grains per quart. The difference in the nature of the springs is largely that of temperature, which varies from 110° F. to 50° F. The following are among the best known of the springs:—Grande Grille, 107° F.; Chomel, 110° F.; Hôpital, 92° F.; Parc, 70° F.; Mesdames, 60° F.; and Célestins, 54° F. The Grande Grille is prescribed in liver complaints, including biliary calculi, in gravel and malarial cachexia; Chomel in respiratory affections and atonic dyspepsia; Hôpital in dysentery, dyspepsia, and gastralgia; Parc in gravel, cystitis, enfeebled digestion, and bronchial catarrh. Mesdames, being comparatively rich in iron and arsenic, is recommended in cases of anæmia and leucorrhœa; while Célestins, which is the most largely exported of all the waters, is chiefly employed in the treatment of gout, uric acid gravel, diabetes, and albuminuria.

Gouty manifestations are undoubtedly the conditions which are most frequently benefited by the products of these springs, but acute gout is a contra-indication for their use.

An impression exists to some extent in the public mind that the waters of Vichy are of a purgative nature, but so little is this the case that occasionally they are credited with producing constipation, and when this occurs, and the consumer at the same time indulges in immoderate quantities, the cerebral and hepatic circulation is said to become congested. A diuretic effect is the usual result of their consumption, but proof is easily obtained of the laxative action which follows a drink of the hotter waters, such as that of the Grande Grille. A tumblerful of plain hot water taken on an empty stomach would probably, however, produce a like effect in the same individual.

The waters are supplied gratuitously to the would-be drinker at the drinking fountains in the parks, by atten-

dants who ask no questions and proffer no advice. In this very facility for obtaining the waters grave dangers lurk--one may drink too much, or may patronise the wrong buvette. If, however, the attendants are dumb waiters, other warning is close at hand, for one sees in conspicuous places : " Notice. Patients are invited in their own interests not to use the mineral waters without medical advice." And of this there can be no scarcity, for cheek-by-jowl in the public parks, alongside of the above notices, printed placards proclaim the names and addresses of some eighty physicians, who may be consulted at choice. Among these are the names of Drs. Durand-Fardel, Willemin and Cormack--the last-named being the only Englishman who practises in Vichy, and whose book on its mineral waters is a standard work.

I have stated above that the waters of the Célestins Spring are those most largely exported from Vichy, but the products of the other colder springs are also scattered broadcast for home consumption. On learning that a total of close on 16,000,000 bottles were despatched from the station in 1902, one is enabled to form some conception of the enormous popularity of these waters among the people of different nations. It goes without saying that the bottled article must occupy an inferior therapeutic position to the same product when it is drunk fresh from the bubbling spring. The company, however, has taken the most elaborate precautions to ensure the purity of their bottled waters. The springs are guarded against any contamination from dust or otherwise. The empty bottles are steeped in acidulated water, then washed out by machinery with water driven into them under high pressure, and finally, they are rinsed with sterilised water before being filled.

The pastilles for exportation are carefully made by a system of evaporation of the mineral waters, after which an effort is made to rehabilitate the carbonic acid gas which has escaped in the process by subjecting the salts to an atmosphere of this free acid under considerable pressure.

A full description of the bathing establishment would require an elaborate essay. It must, therefore, be merely outlined.

The thermal establishment of the first class is an imposing two-storied structure, consisting of an entrance hall, beautifully constructed and artistically decorated. Behind this is a central hall, and on either side of these are three parallel blocks of buildings, of which those on the right are reserved for women, and those on the left for men. Everywhere luxury and comfort for the patients are displayed.

The entire installation comprises 136 bath-rooms, of which 6 are *de luxe*, 13 large douches with dressing-room, 24 massage douches with dressing-rooms, and beds for resting upon; 36 douches ascendantes, where the patients can themselves administer rectal or vaginal lavage, and regulate the temperature, pressure, quantity and variety of water used; 2 douches with bath combined, 4 hot-air baths, and 4 massage rooms; 4 vapour baths, 2 vapour douches, a series of rooms for lavage of the stomach and bladder; nasal and aural douches, carbonic acid baths, inhalations of oxygen and carbonic acid, 2 light baths (hot, radiant, and dousing), 2 large hot plunge, 3 cold plunge, and 8 special plunge baths. An institute of mechano-thérapie on the lines of Zander, and a complete service of electro-thérapie with Schnée baths.

The second class establishment is less luxurious, and therefore cheaper, but the arrangements are practically of a similar character to those obtaining in the first class. In it there are 130 baths of various kinds, but here there is neither mechano-thérapie nor electro-thérapie.

Dr. Lejeune and his assistant, Dr. Pariset, who speaks English, have charge of the baths and electrical appliances, and I can speak with personal satisfaction of the stimulating effects of the jet douche and the plunge bath—the former being administered by Dr. Lejeune himself.

Dr. Vermeulen, who speaks English fluently, has charge of the department of mechano-thérapie, where he has installed, in a fine building in the rear of the establishment, all the appliances of Zander. His efforts are directed to the improvement of the following conditions: Spinal curvatures, articular and muscular lesions which result from rheumatism, obesity, gouty joints, diabetes, digestive troubles, and cardiac irregularities.

In affections of the circulation Dr. Vermeulen claims most encouraging results, and his observations on the character of the pulse before and during his treatment by active and passive movements are such as to place him in the rank of careful observers. Indeed, it may fairly be contended that whatever Nauheim may be able to accomplish in the treatment of cardiac cases the baths and exercises of Vichy can attain equally good results.

To omit some reference to the places of recreation and means of amusement provided by the Vichy Company would be to neglect to notice that part of thermal cures which is considered by many to be the most important. The parks are well shaded with trees, amply provided with seats, and most of them within easy reach of the large hotels and the baths. Bands play during the morning and afternoon in some portion of the grounds. The Casino is one of the finest structures of its kind that I have seen, and the theatre has scarcely an equal anywhere for comfort and elegance. In the Casino tables are provided for baccarat and other games, and during the evening it is lit up so as to present a spectacle at once bright and moving.

The hotel accommodation is of the first class, and palatial structures of this nature are to be found at short intervals around the old park. Des Ambassadeurs, Nouvel, du Parc, are among those which are well patronised. But in addition to the large hotels, where the tariff is from 10f. to 20f., there are excellent smaller hotels where the visitor can board in comfort at 7f. a day. It is needless to say that English is spoken at all the first-class hotels.

Messrs. Ingram & Royle, Ltd., East Paul's Wharf, are the London agents of the company, and from them the fullest information may be obtained on inquiry, while from the head-quarters of the company at 24 Boulevard des Capucines, Paris, the amplest details will be forwarded to those who may desire guide books or other descriptive literature dealing with the thermal establishment of Vichy.

ART. VIII.—*Typhoid Fever in Western Australia and its Management.*^a By MICHAEL O'CONNOR, M.D., M.A. Univ. Dubl.; Member of the Legislative Assembly, Western Australia; Senior Physician Perth Public Hospital; Medical Officer to the Perth Board of Health.

DURING the past thirteen years the most common disease I have met with has been typhoid fever, and it is in connection with the treatment of typhoid I propose to say a few words.

On account of the great influx of people to West Australia, with consequent overcrowding, neglect of sanitation, impure water, &c., a very great number of cases have occurred throughout the colony, especially in Perth and on the recent gold-fields' towns.

It may be said that the treatment of this disease is well defined, but my experience teaches me to the contrary, and that there is no settled plan, but that every case must be treated on its merits. The vast majority of cases will get well if they are put to bed and kept on fluid food, but there is a large minority—say 25 per cent.—that must be attended to according to circumstances. Of these 25 per cent. probably more often than in any other disease is the medical attendant able to turn the scale in favour of his patient by constant, unremitting care and attention, combined with skill and knowledge of the disease.

General Management.—It is absolutely necessary that the patient should be in bed; without this nothing, I believe, will save the patient. This undoubtedly was the main cause of so many deaths, especially among young men, on the West Australian gold-fields, who either lived far away when they were taken ill and travelled to the nearest hospital, only in most cases to die, or else would not give in that they were ill, and with the assistance of spirits tried not to give in, only to collapse in a week's time.

A well-ventilated room, sufficient sunlight, enough clothing to be comfortably warm, nothing to worry, and the absence of visitors. (I have constantly noticed in hospital serious

^a Being a Thesis read for the Degree of Doctor of Medicine of the University of Dublin, June, 1903.

relapses occur in typhoid cases after visiting days, either caused by excitement, or more generally by well-meaning friends, who, thinking the patient is starved, bring them food not allowed by the medical attendant.) Fresh air is most conducive to recovery, patients treated in tents out of town doing so much better than even in well-ventilated hospitals.

Diet.—This must vary according to the patient, but generally, I think, three pints of milk and one pint of beef-tea or mutton broth per diem is sufficient, and I generally add about equal parts of water, or preferably barley water, to the milk, which not only prevents the milk from curdling in the stomach, but also supplies additional water, of which the patient with fever is always in need. On every visit the stools should be examined to see if the milk is properly digested, also the abdomen and heart sounds.

Medicine.—In the early stages calomel gr. 5 should be given, so as to have the bowels well cleared out, and it probably acts in an antiseptic manner as well. A mixture of dilute hydrochloric acid or liquor ammonii acetatis is sufficient for an ordinary case.

Headache.—This occurs in the early stage, when a small dose of phenazone (antipyrin) and sodium salicylate, with mustard to the nape of the neck, rarely fails. I believe the cases with very severe headache want the most careful watching, as such cases, whether they appear to have had an extra dose of the poison or not, are more liable to hæmorrhage than others.

Sleep.—It is not necessary in most cases to give soporifics, but occasionally, particularly in severe cases, it is absolutely important that patients should not become exhausted from want of sleep. I find that morphin in small doses per rectum acts well, and is less liable to upset the digestion. In cases where there is flatulence or any other cause preventing sleep, this must be treated. Sponging the patient is also very soothing to the sufferer.

Diarrhœa.—This is generally caused by the patient being unable to digest the milk, and beef-tea certainly tends to increase it. Barley water should be added, or lime water, and if necessary peptonised milk with lime water should be given; beef-tea should be stopped, and mutton broth may be

tried in its place. If the motions are offensive very small doses of calomel or hydrargyri perchloridum may be given. I have found carbonate of guaiacol and thymol also useful, but I consider that the diet is of most importance.

Constipation.—This is very common in West Australia, and may be corrected by increasing the broths and reducing the milk. Enemata are necessary and effectual.

Tympanites.—This is always serious when accompanied by low nervous depression, and should be met with by stimulants, such as strychnin and caffen hypodermically, with spirits (good brandy or whisky) and turpentine. I remember that one case I was called to see, who appeared to be almost on the point of death, made a marvellous recovery after being put on turpentine with, of course, other stimulants.

From the third week I find that turpentine is a very useful medicine in typhoid fever, preventing the formation of gas, which stretches the already weakened intestines, and also acting as an antiseptic. The diet, as in diarrhoea, must also be revised. Tinct. opii 3j, and repeated in three hours, with careful attention, acts beneficially in those sudden cases of tympanites with severe depression.

Hæmorrhage.—The stools should be constantly examined, for often hæmorrhagic clots and sloughs may be found antecedent to an attack of hæmorrhage, when turpentine may be given and attention paid to diet, and so often preventing a serious loss of blood. Hæmorrhage may be diagnosticated by pallor of the face, weakness of the pulse, a fall of temperature, and, if severe, dulness on percussion over the colon. Opium by the mouth I have found the most useful; it calms the patient, allays the peristalsis which is set up by the blood acting as a foreign body and by this means allowing clots to form. Sp. terebinth. m 15 every third hour is useful. Attend to diet, and allow the fainting condition to remain. Reduce stimulants as much as possible. Astringents I have found of little service, but I believe that chloride of calcium given when the early clots appear would tend to make the blood more coagulable, and thus prevent hæmorrhage.

Perforation.—This should be met with large doses of opium by the mouth, but the chances of recovery are very limited. I have no experience as regards operation, but I cannot see

how any patient is likely to recover from such a severe operation when they are in such a low state; and it is exceedingly problematical if any good result would occur in suturing an intestine which is already so extensively diseased as to rupture.

Temperature.—This can usually be controlled by sponging, which is most grateful to the patient. In pyrexia, which cannot be controlled by sponging, wet packing and warm bath gradually cooled down with ice, watching carefully the patient at the same time, are effective. "Ironing" the patient all over the body and the spine with a lump of ice I have found as useful as anything else. This may have to be repeated as often as the temperature runs up. Quinine is also effectual, but as regards the so-called antipyretic drugs, such as antipyrin, antifebrin, &c., I prefer to leave them alone. They certainly reduce the temperature, but the fever as quickly recurs again, and they have a most depressing effect on the heart, which, after all, is of the utmost importance in typhoid fever, as in every other disease.

Stimulant.—The majority of cases do not require stimulants, but even those in the convalescing state do well with a little good wine or beer. I cannot pretend to have any sympathy with those who treat typhoid fever on strictly temperance principles. Every case must be judged on its merits and treated accordingly. If the heart sounds are getting weak, more especially the first sound, with a pulse fast and of low tension, I should give alcohol; also in cases with dryness of the tongue (not occasioned by mouth breathing), nervous and muscular prostration, with twitching, low, wandering delirium, even up to 12 oz. per diem.

I prefer brandy and whisky of good quality to any other form when the patient is able to take it; and I think it is better to give it in small doses constantly repeated, but not to wake the patient from his necessary sleep. I have also found coffee useful, which can be well taken with milk. Hypodermics of strychnin and caffein are most beneficial when the heart is showing signs of weakness.

Convalescence.—The patient should be kept, no matter how he may complain of starvation, for eight to ten days on fluid diet. I have found that relapses constantly occur if he is

allowed anything in the way of solid food before that time. and after that the food must be gradually increased (very gradually), the temperature being watched carefully all the time.

Recently the serum treatment has been introduced, but my experience of that method is nil. One cannot help hoping that the favourable reports that appear in the medical journals may be eventually borne out, as in the case of diphtheria and streptococcus infection.

It would be unwise to jump at a conclusion that serum treatment is a specific in typhoid fever because certain medical men have had a low death rate, for we all know, at least those who have had an extensive experience, that in one year we may have a high death rate, whilst in the next year under exactly similar treatment we may have a low death rate.

ART. IX.—*Note on "Couperose."* By H. S. PRUDON, M.D.;
Senior Physician Belfast Hospital for Diseases of the
Skin, &c.

THE commencing erythema of acne rosacea, called by the French dermatologists "Couperose," is a very troublesome complaint, and a great disfigurement, especially in the case of ladies, who are more frequently affected than males. The disease, as is well known, begins with flushing of the face, often due to dyspepsia, finally leading to a congested condition of the skin of both cheeks and nose, shown by its reddish colour—often called St. Anthony's fire. As a result of this erythematous condition acne may be developed, which still further adds to the discomfort of the patient. However, the papules ending finally in pustules of acne belong exclusively to acne—the *couperose*—constituted by dilatations of the cutaneous capillaries. I may remark that the local treatment is most important, and for some time I have been using an ointment containing 10 grains of the iodide of cadmium to one ounce of vaseline rubbed well into cheeks and nose at night, and washed off next morning with hot water and an over-fatted soap, accompanied by massage of all the affected skin. The latter I hold to be most important. Formerly I have prescribed iodide of sulphur, which, however, darkens or stains the skin. I also have tried

Wilson's hypo-chloride of sulphur. Unless it is freshly made it has no advantage over ordinary powdered sulphur. But the iodide of cadmium does not stain the skin, and is, as far as I can judge, an excellent local stimulant. Care must, however, be taken not to use a very strong ointment, as it may then give rise to more or less inflammation. The only other physician I have ever seen prescribe the iodide of cadmium was the late Professor James Cuming, at Belfast Royal Hospital. He happened to be my colleague when I was connected with that institution, and he used the strong ointment frequently as a counter-irritant.

INDIAN MEDICAL SERVICE.

THE Military Secretary, India Office, has forwarded for publication a list of the Candidates for His Majesty's Indian Medical Service who were successful at the Competitive Examination held in London on the 3rd of August, 1903, and following days. Forty-one Candidates, of whom 23 had University Degrees, competed for 16 Appointments. Twenty-nine were reported qualified :—

	Marks gained of a possible total of 5,100
1. R. Kelsall, M.B., B.S. (Lond.), M.B., Ch.B. (Vict.)	- 3,729
2. J. H. Burgess, M.B. (Lond.), M.R.C.S., L.R.C.P.	- 3,646
3. C. H. Brodribb, M.B. (Lond.), M.R.C.S., L.R.C.P.	- 3,599
4. J. M. C. A. Macmillan, M.B., B.Ch. (Edin.), M.R.C.S., L.R.C.P.	- - - - - 3,448
5. C. A. Gill, M.R.C.S., L.R.C.P.	- - - - - 3,361
6. W. E. J. Tuohy, M.R.C.S., L.R.C.P.	- - - - - 3,285
7. G. F. J. Harkness, M.R.C.S., L.R.C.P.	- - - - - 3,253
8. F. T. Owens, L.R.C.P., L.R.C.S. (Edin.), L.F.P. & S. (Glas.)	- - - - - 3,242
9. E. T. Harris, B.Ch. (Cantab.)	- - - - - 3,159
10. C. J. Brierley, M.R.C.S., L.R.C.P.	- - - - - 3,118
11. R. F. Steel, M.B., B.S. (Dubl.)	- - - - - 3,097
12. G. W. Maconachie, M.B., Ch.B. (Aberd.)	- - - - - 3,064
13. J. B. D. Hunter, M.B., Ch.B. (Glas.)	- - - - - 3,061
14. A. C. Ingram, M.B., B.Ch. (Cantab.), M.R.C.S., L.R.C.P.	- - - - - 3,046
15. A. W. M. Harvey, M.B., B.Ch. (Edin.)	- - - - - 3,031
16. E. W. C. Bradfield, M.B. (Lond.), L.S.A.	- - - - - 3,024

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Diseases of the Heart and Arterial System. Designed to be a Practical Presentation of the Subject for the use of Students and Practitioners of Medicine. By ROBERT H. BABCOCK. M.D.; Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons, Chicago; Attending Physician to Cook County Hospital, &c., &c. With 3 Coloured Plates and 139 Illustrations. New York and London: D. Appleton & Co. 1903. Pp. 853.

WE have been greatly pleased with this work, and regard it as a treatise of great value.

We have in recent years met far too many books which, to a very considerable extent, consisted of unharmonious and ill-digested compilations of the views of numbers of medical men—books which we read without really knowing much about the reputed author, his capacities, and his theories. From this class of work (of which not a few examples have come from the other side of the Atlantic) the work before us differs absolutely. It is a modest and clearly-written account of the views, observations, and practice of Dr. Babcock. Not that he does not allude freely to other writers. "No claim," he writes in the preface, "is laid to originality, as is apparent from the numerous references to authors from whose works valuable suggestions and information have been derived." And yet the writer's personality dominates every page. When diverse theories are alluded to, we are left in no doubt as to the author's leanings. As regards treatment, too, it is Dr. Babcock's patients that we are reading about.

One of the features of the work consists of the large number of illustrative cases included in it. The author has got that rare and happy knack of describing the symptoms and treatment of a case briefly, but in such a way as to enable us to grasp without effort all the essentials. Many little touches are present which give life to the work; for example, in

writing of the value of an occasional mercurial purge in cases of arteriosclerosis, the author tells us that an old German with very stiff vessels used to frequent his clinic, on whom all his patience and his resources were exhausted in the vain endeavour to do him good. At last 5 grains each of calomel and jalap were prescribed for the purpose of preventing his return. He did not re-appear for two months, and then returned exclaiming that he wanted another such powder—it was the best thing he had ever had.

As regards details of treatment, Dr. Babcock appears to purge patients with heart disease, especially when dropsical, more than is the custom in this country, and uses mercury only as an occasional purgative; the famous Baly's pill does not seem to have travelled as far as Chicago. Resisted movements, he says, may do much good or much harm, and he holds (in opposition to Schott and Bezly Thorne) that they should not be given to patients whose compensation is wholly gone. "Nauheim baths" he also approves, in suitable cases.

We regret to have to mention a few slight defects in a book otherwise so excellent. The coloured plates are rather coarse, and it would not be easy to say what was amiss with some of the hearts whose photographs are reproduced unless one had first read the description of them. A more important fault is the index, which is extremely poor—a grave defect in a book of reference. The printing is delightful, but the paper so glazed that the book is not pleasant to read by gas-light on account of the reflection. "Purser" on page 150, refers to Dr. J. M. Purser of this city. But these are minor blots; and we have again to say that we have formed an extremely high opinion of Dr. Babcock's work.

Disease of the Pancreas: its Cause and Nature. By EUGENE L. OPIE, M.D. Philadelphia and London: Lippincott. 1903. Pp. 359.

THE deficiencies in our knowledge of diseases of the pancreas are due, not so much to the infrequency with which this organ is affected, as to our ignorance of its anatomy, physiology and pathology, and to the fact that its diseases

are generally secondary, so that their clinical manifestations are obscured by accompanying disease of adjacent organs.

In the volume before us the author passes lightly over those diseased conditions of the pancreas which have no special relation to the physiology or anatomy of the organ, such as tuberculosis, new growths, cysts, and suppuration, while detailed consideration is given to other conditions, like acute and chronic inflammation, fat necrosis, diabetes, and hæmochromatosis, which are peculiar, and depend on the special structure and relations of the pancreas.

In the first chapter an excellent description of the anatomy of the pancreas is given. A minute description is given of the arrangement of the ducts, founded on an examination in a very large number of subjects, and is illustrated by striking diagrams. The relations of the ducts to the duodenum and to the common bile duct are shown subsequently to have a great importance in explaining the causation of inflammatory conditions of the pancreas.

The second chapter, on anomalies of the pancreas, is occupied chiefly with a description of accessory nodules of pancreatic tissue, which may occur embedded within the walls of the intestines anywhere from the pylorus to the ileum. Such nodules occur almost constantly around the opening of the lesser pancreatic duct, or duct of Santorini, but much less frequently about the principal duct, or duct of Wirsung. These accessory pancreatic nodules frequently undergo chronic interstitial inflammation, and tending to weaken the walls of the gut may give rise to protrusions or diverticula from the lumen of the intestine.

In the chapter on the histology of the pancreas a very complete description is given of the so-called islands of Langerhans. It is shown that just as in the case of the liver, so in that of the pancreas, the outlines of the lobules are much more distinct in some animals than they are in man. In the cat they are sharply marked out by connective tissue, whose arrangement is illustrated by an admirable drawing. In the splenic end of the cat's pancreas each lobule contains one island of Langerhans; in other parts of the gland the islands are less numerous and their distribution is less regular. In man, too, the islands were found to be about three and a half

times as numerous in the tail as in the other parts of the gland. They are more numerous in the foetus and child than in the adult. The different views which have been put forward by the numerous writers on these structures are fully discussed, and, as a result of this discussion, and of the experiments and observations of the author on the subject, he considers the following facts are established:—"The islands of Langerhans are composed of cells of epithelial type having the same origin as those which form the acini. Ramifications of the pancreatic duct do not penetrate the interacinar islands, while on the other hand these bodies have an intimate relation to the vascular system. They occupy a definite position within the pancreatic lobule (of the cat), and are more numerous in certain parts of the gland than in others. It is not possible to transform secreting acini into islands of Langerhans." As to the functions of the latter the author holds that there is "convincing evidence that the islands of Langerhans control the assimilation of sugar."

In the two following chapters the subject of acute pancreatitis is dealt with. It is shown that no sharp line of distinction can be drawn between the cases described as pancreatic hæmorrhage, hæmorrhagic pancreatitis and gangrenous pancreatitis. "These processes are essentially widespread necrosis of the parenchyma, associated with injury to the blood vessel walls and hæmorrhage; inflammatory changes rapidly follow, and so-called gangrenous pancreatitis is a late stage of the hæmorrhagic lesion; the gland primarily undergoes necrosis." From a lengthy discussion as to the ætiology of this affection it is concluded that only one causative factor has as yet been proved—namely, the impaction of a small gall-stone in the orifice of the diverticulum of Vater into the base of which open both the common bile duct and the pancreatic duct of Wirsung. In consequence of the obstruction to the passage of bile into the duodenum this fluid is forced back into the pancreatic duct, where it has been found in *post-mortem* examinations. By experiment it has been shown that, like many other irritating substances, bile when injected into the pancreatic duct produces rapidly fatal hæmorrhagic pancreatitis. In order that this reflux of bile shall occur the diverticulum must be long in proportion to the diameter of

its orifice, for if the whole diverticulum is occluded each secretion is dammed up in its own duct, and cannot flow into the other. From the author's minute and extensive examination of the arrangements of the ducts already noticed he concludes "that in little more than three of ten individuals are the anatomical conditions such that a small calculus might divert the bile into the pancreatic duct." Further, in about one case in ten the duct of Wirsung is small, while that of Santorini is the principal channel. "These facts explain partly the rarity of acute hæmorrhagic pancreatitis when compared with the relative frequency of cholelithiasis."

The condition described as fat necrosis in which the alteration in the adipose tissue is confined to the abdomen, and chiefly to the neighbourhood of the pancreas, is shown to be due to the action of the fat splitting pancreatic ferment on the affected parts. It occurs when in consequence of obstruction to the pancreatic duct the secretion is retained under pressure, and when, as in cases of hæmorrhagic pancreatitis, there is not only retention but alteration of the walls of the ducts. Experiments in which the ducts were ligatured, or in which the secretion was diverted into the subcutaneous tissue, prove that this explanation is sufficient to account for the phenomena observed in man. The recognition of fat necrosis is important for the surgeon who opens the abdomen, as it always indicates serious pancreatic disease.

In the chapters on chronic pancreatitis the author divides this condition into two kinds. The more frequent kind is due generally to obstruction of the pancreatic duct, and more rarely to an ascending infection of the unobstructed duct of Wirsung. In these cases the interlobular tissue is chiefly affected. The change advances from the periphery of the lobules, and the centrally placed islands of Langerhans are spared until a very late period. The other kind, which accompanies cirrhosis of the liver, is a diffuse chronic inter-acinar pancreatitis, characterised by proliferation of the tissue within the lobules, which invades and destroys the islands of Langerhans. "A similar lesion accompanies arterial sclerosis, hyaline degeneration of the islands of Langerhans, and the condition known as hæmochromatosis."

An interesting chapter is devoted to hyaline degeneration

of the pancreas, in which the islands of Langerhans are alone converted into a transparent structureless material whose nature is so far obscure. The condition is commonly associated with diabetes.

The following are the conclusions of a long and able discussion of the relationship between pancreatic disease and diabetes :—

“(1) In considerably more than half of all cases diabetes is the result of a destructive lesion of the pancreas. (2) Where diabetes is the result of pancreatic disease, injury to the islands of Langerhans is responsible for the disturbance of carbohydrate metabolism, since that influence which the normal pancreas exerts upon the assimilation of sugar is a function of these structures. (3) The most common lesions which injure the islands of Langerhans are chronic interstitial inflammation of the interacinar type and hyaline degeneration. Chronic interstitial inflammation may be the result of general arterial sclerosis or of toxic substances—for example, alcohol causing chronic inflammation of both the liver and pancreas. The islands of Langerhans show a special tendency to undergo hyaline degeneration, but the cause of this lesion is obscure. (4) Other lesions of the pancreas do not exhibit a tendency to select the islands of Langerhans, but produce diabetes because they destroy the interacinar islands along with the secreting parenchyma. Such is true of very advanced interlobular pancreatitis which follows duct-obstruction, the invasion of malignant tumours, and the necrosis of acute inflammatory lesions.”

The still imperfectly understood condition first described by von Recklinghausen in 1889 as hæmochromatosis is probably identical with that named *Diabète bronzé* by French writers. It is characterised by the presence of iron containing pigment in the epithelial cells of various glands, principally in the liver and pancreas, while in the smooth muscles of the gastro-intestinal tract and of the blood and lymph vessels, as well as in certain connective tissue cells, an iron free pigment is contained. Cirrhosis of the liver and pancreas is present, and usually diabetes. The various problems arising in connection with this condition are ably discussed by the author, who concludes that from destruction of blood corpuscles, and probably some associated toxic cause, a pigmentary degenera-

tion of parenchyma cells of the glands takes place; that the irritation caused by the presence of the pigment causes a proliferation of the connective tissue, or an interstitial inflammation; that in the pancreas this chronic inflammation is of the interacinar type, and affects the islands of Langerhans, which affection, when it reaches a certain degree, causes diabetes.

The final chapter treats of the symptoms and treatment of pancreatic diseases, and shows how the ætiological and pathological facts detailed in the earlier parts of the work may be made available in diagnosis and therapeutics. We cannot follow the author through this, but we may say that notwithstanding the valuable researches and discoveries that he has made relative to pancreatic diseases, these affections, in a clinical point of view, are not as yet a credit to medical knowledge and skill. It is, however, by such investigations as those of Dr. Opie that this opprobrium will be removed and we cannot conclude our notice of his book without expressing our sense of its great value, and without recommending its perusal to all members of the profession whether engaged in medical or in surgical practice.

The volume is well printed and handsomely illustrated with plates, some of which are in colours. A valuable bibliography is appended and there is a good index.

A Text-book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. By ARTHUR R. CUSHNY, M.A., M.D. (Aberdeen); Professor of Materia Medica and Therapeutics in the University of Michigan. Third Edition, Revised and Enlarged. Illustrated with 52 Engravings. London: Rebman, Limited. 1903. Printed in America. Dedicated to OSWALD SCHMIEDEBERG.

THE author makes a vigorous statement in the preface to the first edition (1899) of his desire to place the study and practice of pharmacology and therapeutics on a scientific basis, which basis must rest upon the experimental results of the laboratory investigator. He deplores the difficulties that beset the investigator, which are—(a) the overwhelming

literature on the subject ; and (b) the wide limits of the field of study. He boldly maintains that where the experimental investigator fails to elucidate therapeutic effects, or even to suggest a possible explanation, that he prefers to leave the question undiscussed rather than call for help on such occult "*dei ex machinâ*" as alterative or tonic actions.

In the third edition, which it was necessary to publish on account of the recent advances that have been made in pharmacology, will be found the authoritative, and it is to be hoped the final, determination of the food value of alcohol, the increasing use of cocaïn as a local anæsthetic ; and the introduction of the subarachnoid method of medication required an expansion of the chapter upon this drug. Also some additional information is given in reference to the adrenal gland. A review, in which drugs are classified according to their therapeutic value, has also been added.

In reference to the food value of alcohol, the experiments of Newmann, Atwater, Benedict, and Roseman have induced the first-named investigator—Prof. Newmann—to draw the conclusion that alcohol can replace a chemically equivalent amount of fat in the dietary, *vide* p. 143. The final result of these investigations shows that alcohol can take the place of some of the fat in the food, and leads to the same economy of proteid, as the ordinary non-nitrogenous constituents of the dietary.

The production of anæsthesia by cocaïn may be local or central. The method of injecting strong solutions, previously used by Reclus, is dangerous. Schleich, under the name of "infiltration anæsthesia," has adopted a more satisfactory method of local anæsthesia, *q.r.*, pp. 311, 312.

The first attempt to produce anæsthesia by applying cocaïn to the roots of the spinal nerves in the vertebral canal was made by Corning, of New York ; but the development of the procedure is due to Bier and Tuffier. A long, hollow needle is passed into the spinal canal between the laminæ of the lumbar vertebræ, and 1 cc. of a 2 per cent. solution of cocaïn hydrochloride ($0.02 \text{ g.} = \frac{1}{50} \text{ gr.}$) is injected after the withdrawal of an equivalent amount of cerebro-spinal fluid. Within a few minutes numbness begins, generally in the feet at first, &c., *vide* pp. 311, 312. No fatality is reported to have resulted

from this method, although it has been employed in over 2,000 cases, and no permanent injury to the nervous system has been observed from it.

The author's final observation on this paragraph is, however, significant: "It seems probable that this method will in the future attract less attention than it has recently, and will be regarded as a last resort to be used when special circumstances contra-indicate the general anæsthetics, and operation is imperative."

In Section XXX., pp. 463-468, will be found the information gained by recent experimental investigation on the properties of the adrenal glands, with a diagram of the tracing of the blood pressure under the influence of extract of suprarenal gland; also "bibliography."

The trend of this valuable publication is to present to the profession and to students of medical science a modern, scientific and practical aspect of the truths revealed by the investigations of those who are engaged in the study of practical pharmacology and therapeutics.

The author was a distinguished student, whose devotion to his laborious study and investigations, under the training of his great chief—Dr. Oswald Schmiedeberg—has resulted in his attaining the high position which he now occupies.

Tumours: Innocent and Malignant. By J. BLAND-SUTTON, Surgeon to the Chelsea Hospital for Women; Assistant Surgeon to the Middlesex Hospital, London. Third Edition. With 312 Engravings. London: Cassell & Co., Ltd. 1903. Pp. 556.

LESS than two years having elapsed since we reviewed the second edition of this manual it is now merely necessary to notice the few changes made in the present edition. The most noticeable is the inclusion of a chapter of some 15 pages, well illustrated, on Echinococcus Colonies. The term "epithelioma" has been abandoned, and throughout is replaced by the phrase "squamous-celled cancer." That primary carcinoma of the Fallopian tube occurs is now an established fact, and a paragraph will be found stating its general clinical features for diagnostic purposes. This condition is further-

more illustrated by a drawing taken from a specimen of this condition removed from a sterile woman of fifty-seven years of age. The same excellent features are present in this as in the previous editions. The book is still the best in the English language on this subject.

On Siphonage and Hydraulic Pressure in the Large Intestine.

By RALPH WINNINGTON LEFTWICH, M.D.; late Assistant Physician to the East London Children's Hospital; Author of "An Index of Symptoms," &c. London: J. & A. Churchill. 1903. Pp. 80.

IN this brochure the author endeavours to prove that the longitudinal bands in the large intestine are in a state of tonic contraction. The function of the large intestine, according to him, is simply that of a siphon.

Adopting this view he deals with the bearing of siphonage and hydraulic pressure upon the treatment of constipation, appendicitis, intestinal obstruction, faecal accumulation, and typhoid fever.

He also advances the theory of siphonage to account for the production of intussusception. His views are certainly novel and interesting. We presume usage for a long time will make anything after a manner correct, still it would be etymologically more correct for the author to have spelt the title of his book as we have done. The word "siphon" is derived from the Greek *σίφων*, consequently the word should be spelt with an "i" and not with a "y."

Manuel de la Prostatectomie Périnéale pour Hypertrophie

Par le DR. ROBERT PROUST, Prosecteur à la Faculté. Paris: C. Naud, Éditeur. 1903. Pp. 190.

THIS little manual, which is very nicely illustrated, is devoted to a subject about which the surgical profession is still undecided.

The book is divided into sections on the anatomy, the pathology, and the description of perineal prostatectomy. Six plates are appended, showing prostatic enlargements removed by the author after the manner described by him in the text.

An appendix contains the history of six cases upon which the operation had been performed.

The author makes out a strong case for the perineal route, and anyone reading over this manual will feel that the question should be finally decided at once in favour of this procedure, provided he has not had any experience in this branch of surgery himself. To remove a hypertrophied prostate by the perineal route is not always as easy to do as some surgeons would have us believe, or as would seem to be the case from reading over this manual. It may be under certain circumstances an utter impossibility to do so. Practice in this as in every other procedure will enable a surgeon to overcome difficulties that must be quite insuperable to one less experienced, still everyone must make a beginning to obtain his experience. Our own experience leads us to prefer the suprapubic route, but a study of this manual seems to make the perineal method clear and easy of performance.

We can strongly recommend the study of the book to operating surgeons as a valuable monograph on the subject both from a pathological and operative point of view.

The Scottish Medical and Surgical Journal. Edited by NORMAN WALKER, M.D., F.R.C.P. Ed.; and HAROLD J. STILES, M.B., F.R.C.S. Ed. Volume XI. (July to December.) Ten Plates, with twenty-nine Figures and Charts in the Text. Edinburgh: The Scottish Medical and Surgical Journal, Limited. 1902. 8vo. Pp. 582.

THIS item of a noteworthy professional periodical does—like its predecessors—full credit to its printers and publishers, as well as to its various learned and skilled contributors and its capable and discriminating editors. It would be idle to attempt to criticise its very numerous important articles within the prescribed limits of an ordinary review. Every important department of professional industry and advancement is well and variously represented. We would recommend every beginner (and his guardians) to read (see page 385) an "Introductory Lecture," by Professor A. R. Simpson, which bears the inspiring title of "Paget—Virchow—Levet—and the Priceless Power of Knowing a Foreign Language." It is an

excellent specimen of inspiring advice and wise suggestion ; and merits special attention at the present period, when the tendency inclines towards depreciation of high-class education for the embryo medical man, and we occasionally find ourselves confronted with the presence of a prosperous and high-placed surgeon who ignores the existence of *every foreign language*, and possesses but a very imperfect knowledge of *his own*.

A System of Physiologic Therapeutics : A Practical Exposition of the Methods, other than Drug-giving, useful for the Prevention of Disease, and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D. ; Senior Assistant Professor of Clinical Medicine in Jefferson Medical College ; Physician to Jefferson Medical College Hospital, to the Philadelphia Hospital, and to the Rush Hospital for Consumption, &c. Volume X. Pneumotherapy, including Aerotherapy and Inhalation Methods and Therapy. By DR. PAUL LOUIS TISSIER, one-time Interne of the Paris Hospitals ; Assistant Consulting Physician to Laennec and Lariboisiere Hospitals ; Chief of Clinic in the Faculty of Medicine of the University of Paris. Illustrated. London : Rebman, Limited. 1903. 8vo. Pp. 479.

THIS excellent volume will, necessarily, in the present state of scientific medical research and practice, attract a very large proportion of the interest of the readers of this truly splendid "system," for it deals with a department of medical theory and practice which is now in receipt of a specially large amount of attention. The importance of the quality of the air we breathe has, of course, been recognised since the earliest dawn of human intelligence, but was never so thoroughly appreciated as at the present moment. The most important of the recent advances in prophylaxis and in therapeutics have been made in connection with the skilful control and utilisation of the properties of atmospheric air. The inhalation of other gases and vapours has also, within the past half century, come to take an important place in the professional armamentarium both of physician and of surgeon. The beneficial effects of the various gases which have been employed

in diseases of the lungs and air passages, on the one hand, and the continual use of the various anæsthetic vapours on the other, have, necessarily, had the effect of focussing, not only professional, but public opinion on the various benefits claimed for such agents. Such attention has, of course, had the result of continuously adding to our knowledge of the subject. And the extremely well-written volume now before us is the outcome of a conscientious and discriminating endeavour to read, sift, mark, and arrange for the intellectual digestion of all readers who may be concerned, or interested, all the evidence on this department of human knowledge which possesses any illuminating value at this date. It is hardly necessary to add that we consider it to be the duty of every conscientious practitioner to make himself acquainted with its contents.

Elementary Bacteriology. By M. L. DHINGRA, M.D., C.M. Edin.; Diplomat in State Medicine, University of Cambridge; Member of the Sanitary Institute, &c. With Coloured Frontispiece and Illustrations in the Text. London, New York and Bombay: Longmans, Green & Co. 1903. 8vo. Pp. xiv. + 145. Price, three shillings net.

IN this well-written and eminently readable little book the author has succeeded in condensing, as it were, into a very small space the most recent information on the vast subject of bacteriology and its practical application. Dr. Dhingra's name suggests that he is a native of the Empire of India, and so in his preface he tells us that "the material has been so selected and arranged as to meet with the ordinary requirements of Indian students and practitioners."

In an introductory chapter on the theory of spontaneous generation the author informs us that with the discovery of the resistant forms of micro-organisms, "spores" or seeds, the doctrine of spontaneous generation received its final death-blow. On the next page, and almost in the same breath, he writes: "This recognition of the hypothesis of spontaneous generation can do no harm. It is in complete harmony with the law of origin from ancestors, which, as we have already seen, is capable of universal application. And, although the experimental proof be wanting, the possibility

of spontaneous generation must be frankly admitted, if bacteriology is to take its rank among the exact sciences." To say the least, these statements are contradictory, and it is open to question whether such a momentous theory as that of spontaneous generation should be introduced as a working hypothesis into a scientific work such as this purports to be.

The other topics which are discussed in Part I. of the book are—fermentation, the morphology of bacteria, their general biology; the phenomena of putrefaction, antiseptics and disinfectants, and the preservation of food-stuffs. These various topics are discussed and explained in admirably clear language. Dr. Dhingra seems to possess no small sense of humour, as when he writes "It must be realised that the creation of a rival smell is no criterion of safety." "In the light of these facts the absurdity of sprinkling carbolic powders, and of pouring a deodorant down the gutter, becomes apparent" (page 49). He is epigrammatic at times—witness these sentences: "The sanitary engineer brings these organisms into his service, and utilises them for the purification of our water supplies. He makes them grow on the surface of sand filters, so that the latter become not only mechanical, but biological filters as well" (pages 43 and 44). Or, again, "What is called a 'disease' is not a specific entity, but a series of morbid manifestations, which, for convenience, have been arranged into groups." And, at page 43, "These 'subtle artisans of nature' are constantly at work breaking up and re-building materials, and thus form the last link in the cyclical course of matter."

Part II. opens with two introductory chapters—one on bacteria in disease, the other on suppuration. It closes with a brief account of the most recent views as to the nature of immunity. In a succession of short intervening chapters the following diseases and their several bacteriological relations are described:—Gonorrhœa, pneumonia, anthrax, cholera, typhoid fever, tuberculosis, leprosy, actinomycosis, diphtheria, glanders, influenza, plague, tetanus, malaria, and dysentery.

There are two appendices. Appendix A. gives a condensed account of the principles of bacteriological technique. Appendix B., on snake venom and anti-venomous serum, will be very useful to Indian students and practitioners.

This book is singularly free from misprints or blemishes of style. We notice, however, that Metchnikoff is systematically written "Metschnikoff," and the barbarous plural "sera" is adopted throughout. In Latin "serum" means "whey." In English the plural of "serum" (an albuminous fluid) can only be "serums."

Dr. Dhingra's work is well illustrated, but nearly all the drawings and the coloured plate which forms the frontispiece are taken from other authorities—of course with due acknowledgment.

We cordially recommend this excellent book to all intending students of bacteriology. Once its contents are mastered a sure foundation will have been laid on which to build up a sound knowledge of microscopic biology.

Obstetrics: A Text-book for the use of Students and Practitioners. By J. WHITBRIDGE WILLIAMS, Professor of Obstetrics, Johns Hopkins University, &c. New York and London: D. Appleton & Co. 1903. 8vo. Pp. xxii + 845.

THIS large volume maintains the high scientific standard which is the characteristic of the work which emanates from Johns Hopkins University. It aims at giving a scientific basis for the practical application of the obstetric art. Special attention has been given to the normal and pathological anatomy of the generative tract; while, at the same time, the practical aspects of obstetrics are treated in a fashion calculated to be of direct service to the busy practitioner.

The book is well illustrated; artistic effect is sacrificed to accuracy and practical teaching qualities. The illustrations representing microscopical sections have been drawn from the author's own specimens under his own supervision, and they are a distinctive feature of the book.

The best chapters are undoubtedly those devoted to the anatomy, physiology, and development of the ovum, and a special word of praise must also be given to the chapter on puerperal infection.

With some of the teaching in the practical portion of the work we are not quite in accord; a little more elaboration would have been useful to the student. Take, for instance,

the instruction as to finding the foetal heart. "In head presentations the point of maximum intensity is usually midway between the umbilicus and the anterior superior spine of the ilium." This is too indefinite. Where from this description would the student expect to hear the foetal heart in, say, the third portion?

On the vexed question as to induction of labour, he is in direct opposition to the conclusions of the International Medical Congress of 1890, which recommended that induction of labour was indicated in generally contracted pelves with a conjugata vera varying from 7.5 cm. to 9 cm., and in flat pelves with conjugata vera of 7 cm. or more, and should be performed as late in pregnancy as possible, preferably about the thirty-sixth week. He abandons this teaching and advocates the performance of Cæsarean section, believing that thereby the practice would effect the saving of nearly all the children. How would this teaching work out in country districts? For accouchement forcé he advocates the manual method of dilatation of the os suggested by Harris, and no mention is made of the mechanical method after Bossi. The chief objection to the manual system is in its limitations—the labour must have started, and the cervix must not be hard or rigid.

The teaching in the chapter devoted to ante-partum hæmorrhage is not quite up to date, neither is it full enough; the advice in cases of acute accidental hæmorrhage, whether of the concealed or external variety—that the uterus should be emptied with the least possible delay—we cannot accept; it is dangerous. No mention is made of any alternative treatment, such as the tight vaginal plug with binder, which has given such excellent results at the Rotunda.

In the chapter on puerperal infection the author is seen at his best, and although the treatment is directly opposed to the usual practice, nevertheless his modifications are based on sound scientific lines. He does not recommend curettage as a routine measure in all cases of puerperal infection. It is, he says, especially dangerous in streptococcic infection. He deprecates the use of bichloride or carbolic douches, and he justifies his conclusion by Bumm's experiments, in either

streptococcal infection or putrid endometritis. A douch of sterile saline is far better.

Taking the book as a whole we consider it a work of high merit, and worthy of the best traditions of Johns Hopkins University.

Studies from Institute for Medical Research, Federated Malay States. Vol. 2. No. 1. An Inquiry into the Etiology and Pathology of Beri-Beri. By HAMILTON WRIGHT, M.D. London: Churchill. 1902. Pp. 95.

IN this able document Dr. Wright, after pointing out the very favourable field for observation afforded by the Malay Peninsula, describes the geography, geology, and meteorology of this country. He finds no support for the theory that beri-beri is merely arsenical poisoning, as maintained by Ross, and calls attention to the fact that a comparatively smaller number of cases of the disease occur during the period of the south-west monsoon than when the north-easterly wind is blowing.

He proposes the following new classification of cases of beri-beri:—

1. Acute pernicious beri-beri, which is always fatal.
2. Acute beri-beri, which runs a course of 3 to 6 weeks, leaving the patient paralysed.
3. Beri-beric residual paralysis, which persists after the specific virus has ceased to act.

His observations lead him to estimate the incubation period of beri-beri at from 10 to 15 days.

In the Malay Peninsula a great number of representatives of different races are met with. The author speaks of it as "a whirlpool to which tends the flotsam and jetsam of many Oriental peoples." He gives us many interesting particulars of the social and hygienic conditions under which these people live, and the degrees to which they are affected by beri-beri. While Europeans and Eurasians scarcely suffer at all, and the aboriginal Malays and Tamils suffer but slightly, the Chinese are the greatest sufferers. Among them the contract labourers suffer most, and among these chiefly the contract immigrants. It is shown that this cannot be

accounted for by racial peculiarities or by food, or on any other hypothesis than association in buildings infected by some specific organism. As regards sex, it is concluded "that females of the different races are susceptible to beri-beri to the degree to which they live under the conditions that induce it in the males." The greatest susceptibility to the disease is shown from 10 to 30 years of age. The disease is more common in low, moist valleys than in elevated regions.

None of these circumstances throw much light on the causation of the disease, and Dr. Wright thought "that if one were given a focus in which beri-beri had been long epidemic or endemic, where regulations in the matter of sleep, work, diet, and personal hygiene could be uniformly applied to a mixed party of Malays, Chinese, Tamils, and other Orientals, it might readily be determined what etiological theory of beri-beri best fitted the facts."

Accordingly he got possession of the new gaol in Kwala Lumpor, in which beri-beri had been endemic since 1895, and set himself to determine "(1) if the disease was contracted intramurally or extramurally by prisoners engaged on work beyond the gaol walls; (2) the value of certain diets as etiological factors; (3) whether or not a racial immunity existed."

It would lead us too far to follow the author into all the details of his research; we can only say that while all the prisoners were placed on a uniform and physiologically good diet, they were divided into groups, some of which worked in the gaol and lived in certain parts of the building where cases of beri-beri frequently occurred, while others worked extramurally and slept in other parts of the gaol where the disease was less rife.

From the observations, which extended over 11 months, the conclusion is drawn that the theory "which fits the facts observed, and also all those observed in British Malaya, is that beri-beri is due to a specific organism which gains entrance to the body *via* the mouth; that it develops and produces a toxin, chiefly in the pyloric end of the stomach and duodenum (giving rise to intense hæmorrhagic inflammation of these parts); and that the toxin, being absorbed, acts atrophically on the peripheral terminations of the afferent and efferent

neurones. Further, that the specific organism escapes in the faeces and lodges in confined places," . . . and that under favourable circumstances it gains entrance to the healthy body in the food and induces the disease.

It is probable that the germ is readily destroyed by sunlight, and that CO₂ or some other gas is necessary for its development. Search, however, for a specific organism, either in the gaol or in the blood and bodies of the patients or in their food, failed to discover any such.

A discussion of the numerous other theories which have been propounded to explain the causation of beri-beri shows that none of them accord with facts.

Interesting experiments on monkeys which were confined in infected cells and fed on food rubbed on the floor, so as to be contaminated with the supposed germs, developed a disease which, both in its symptoms and *post-mortem* appearances, was identified as beri-beri.

Notes of cases which justify the new classification of the disease proposed by the author are given, and a section on pathology. Chapters also are appended in which it is shown that the Chinese habit of top dressing vegetable gardens with human excrement does not spread the disease, which also is not due to the rice or fish consumed by the people.

Rules for the Prevention of Consumption. Public Health Series. Welsh Educational Publishing Co., *Express Office*, Merthyr Tydfil. 1903.

THIS is one of a series of wall-charts dealing with Public Health questions, suitable for hanging in schoolrooms. It is attractively printed in red and black on linen, and mounted on rollers. The information contained in the chart is necessarily limited by considerations of space, but we think more emphasis should have been laid on the main points involved in the prevention of consumption—the risk of personal infection and the necessity for the destruction of tubercle-laden sputum. We read that "the germs which cause consumption belong to the vegetable kingdom. In nature they have a beneficent work to perform;" while nowhere is it hinted that infected sputum is the main agent for the conveyance of the virus of

consumption from man to man. The greater portion of the chart is devoted to precepts of general hygiene, and, while its design is excellent, we think that it needs drastic revision before it could be recommended as dealing adequately with its subject.

International Clinics. Volume IV. Twelfth Series.
London: J. B. Lippincott Co. 1903. Pp. 317.

THE longest and most important article in this volume is a careful review by Dr. T. R. Brown of the recent work on the subject of the blood in health and disease.

There is an interesting paper by Dr. Gardiner, of Colorado, advocating that tuberculous patients should live in tents; full details are given of the kind of tents he advises. Dr. Moynihan discusses the value of operation in hæmatemesis from gastric ulcer. In acute cases he does not think an operation will help much, if at all; but in chronic ulcers recurring hæmorrhages are best treated by excision of the ulcer or gastro-enterostomy. Dr. E. S. Bishop writes of pain in abdominal diagnosis. There are other papers of interest.

The work is a model of printing and publishing.

Russische medicinische Rundschau. Monatsschrift für die gesamte russische medicinische Wissenschaft und Litteratur. Unter Mitwirkung hervorragender russischer Gelehrten und Aerzte. Herausgegeben und redigiert von DR. SEMJON LIPLIAWSKY und DR. S. WEISSBEIN in Berlin. Berlin: Haussmann. 1903.

WE have much pleasure in directing the attention of our readers to this new publication. The great activity of the Russian medical profession, and the excellent work its members are turning out in all branches of medicine and surgery, are not as widely known in Western Europe as they deserve to be. This is due largely to their publication in a language which is understood by very few out of Russia. The present work is intended to make the Russian works more extensively known by publishing abstracts of them in German. At the same time it publishes short original communications, notices of

books, reports of meetings of societies, and medical news. It, in fact, follows the lines of the *Centralblätter*, of which there are so many at present before the public. The number before us is full of interesting matter, and is well printed and brought out. Each monthly number contains four to six sheets. The annual subscription is 12 marks in Germany, 15 marks for foreign countries.

A Text-Book of Legal Medicine and Toxicology. Edited by F. PETERSON, M.D.; and WALTER S. HAINES, M.D. In two Volumes. Philadelphia and London: W. B. Saunders. 1903. Vol. I. Pp. 730.

This text-book has been compiled by sixteen writers, and is, when completed, to consist of two volumes. Of these the second has not yet been published. It is to contain the sections on toxicology and such subjects as require laboratory investigation.

Volume I., concerned with such subjects as are treated in ordinary British works on forensic medicine; but in addition there are chapters on subjects which are usually passed over with a brief notice. Thus, the work begins with a fairly long article on the mode of making a *post-mortem* examination. In this connection we must protest against the method of opening the left ventricle which is here advocated. It is directed that an enterotome be passed up beside the interventricular septum into the aorta, and that the upper part of the ventricle and the aorta be opened by one clear cut. Such a proceeding cannot fail to cut through one of the aortic cusps. It will be found much more satisfactory in the end if care be taken to separate the aorta from the pulmonary artery, and then to open the aorta by cutting between two cusps.

There is a useful chapter on the destruction—actual or attempted—of the human body by fire or by chemicals: a subject about which it is not easy to obtain information elsewhere.

There is a fairly long chapter—over 60 pages—on railway injuries, and affections of the nervous system following such injuries. There is also a long chapter on life and accident

insurance. In the latter we are pleased to find that the author assumes that his readers have some knowledge of medicine, and, without describing how to examine the urine, or the physical signs of cardiac disease, confines himself mainly to those matters which belong exclusively to the department of life insurance.

The chief fault that we have to find with this work is that it is mostly written in a long-winded and diffuse style, which makes it by no means an easy book to read.

Muco-Membranous Entero-colitis: Symptoms, Complications, Etiology, Treatment. By M. DE LANGENHAGEN, M.D.; Consulting Physician at Plombières, Vosges. London: J. & A. Churchill. 1903. Pp. 115.

DR. DE LANGENHAGEN considers mucous enteritis to be a constitutional disorder—an outcome of the neuro-arthritic diathesis, which creates a predisposition to intestinal atony and stubborn and prolonged constipation. At Plombières he had treated a number of cases of this disease, and as a result of his experience speaks very hopefully of the prospects of cure, although the duration of the malady is very protracted.

As regards treatment, he recommends careful dieting, avoiding all fat, green vegetables, and indigestible matters, such as fruit skins. He recommends the free use of milk. The bowels must be made to act daily; Dr. de Langenhagen gives castor oil every 2 or 3 days, as needed, for months together. The colon should be washed out with large quantities of hot water (45° to 48° C.). He finds a course at Plombières most useful in the treatment of mucous colitis.

Medical and Surgical Reports of the Boston City Hospital. Thirteenth Series. Edited by HERBERT L. BURREL, M.D.; W. T. COUNCILMAN, M.D.; and C. F. WITHINGTON, M.D. Boston: Published by the Trustees. 1902.

THE present report of the Medical and Surgical Report of the Boston City Hospital is of great value as an evidence of the progress of medicine in the United States. Besides this the original papers possess an intrinsic value that it would be

difficult to over-estimate ; every one of the sixteen papers are of more than transitory value. We cannot give more than a reference to some of the articles, amongst others to those on rupture of the intestines; the normal appendix, estimation of the functional capacity of the kidneys; and one on the pathogenesis of enlarged prostate.

The volume is illustrated with diagrams and a large number of skiagrams.

Cellular Toxins, or the Chemical Factors in the Causation of Disease. By VICTOR C. VAUGHAN, M.D.; and FREDERICK G. NOVI, M.D. Fourth Edition. Revised and Enlarged. London: Rebman. 1903. Pp. 495.

It is scarcely necessary to insist on the usefulness of a work which has reached a fourth edition, but as we believe that before us is not so well known in this country as it deserves to be we should like to bring it prominently under the notice of our readers. The matters dealt with by the authors are of the greatest importance, and have already not only influenced our theoretical views of disease, but have come to play an important part in diagnosis and treatment. At the same time, the subject is new, a great deal of it is still very theoretical, many of these theories are of great difficulty and complexity, and the literature is so vast and scattered that even the specialist finds it hard to keep pace with it, while for the practitioner it is absolutely impossible.

By collecting into one volume, and arranging such a mass of matter as we here find, the authors have earned the gratitude of a very large circle of readers, and we cannot doubt that their work will find as widespread a popularity on this as it has enjoyed on the other side of the Atlantic.

The present edition has undergone complete revision, and is to a large extent re-written, "with the intention of curtailing the space given to subjects which advanced knowledge has shown to be less important, and also for the purpose of introducing new matter" dealing with subjects which were unknown at the time when the last edition was published. The endeavour has been made, and with great success, to bring the matter down to the end of 1901.

The work is, of course, mainly a compilation, but, for the reasons stated, a compilation of very great value. Its preparation must have been a laborious and difficult task.

It would, of course, be impossible to give within our space any analysis of such a book, but the titles of some of the chapters will give an idea of what is to be found in the volume. After chapters on the ætiology of bacterial disease, a classification of bacterial products, and a historical sketch of bacterial poisons, we have a long chapter on the bacterial poisons of some of the infectious diseases, such as anthrax, cholera, tetanus, tuberculosis, typhoid fever, pneumonia, puerperal fever, glanders, and many others. This is followed by chapters on the germicidal properties of blood serum, alexins and nuclein; the specific precipitins; the lysins; the agglutinins; immunity to bacteria and to toxins, both natural and acquired; food poisoning; the examination of poisonous foods; the methods of extracting ptomaines; and the importance of bacterial products to the toxicologist. Two long and most valuable chapters give the chemical characters of the ptomaines and leucomaines respectively. To these are appended useful tables, showing the properties of these bodies and other facts connected with them. The final chapter deals with the autogenous diseases.

The work is well brought out, and has a good index.

Physiology of Mastication. By J. SIM WALLACE, M.D.,
L.D.S., &c. London: J. & A. Churchill. 1903.

THE small edition before us will appeal to readers of the author's former and larger work as a corollary thereto—the same line of thought pervading. His description of orthodox mastication is a clear one. Would that all humanity could be brought to apply the same practically!

The probable good effects of thorough food trituration in the mouth is here clearly demonstrated, especially in its beneficial bearing *versus* dental decay; and though much of what the writer has laid down is necessarily theoretical, his deductions appear to us as reasonable. Emphasis is once more laid upon the importance to the individual of the non-removal of *all* the unassimilable constituents of food-stuffs

(fibre, husks, &c.), these, according to the author, aiding peristalsis, necessitating more thorough mastication, with its train of good effects—viz., a healthy flow of oral fluids and lessened residue of fermentable sordes upon the teeth (so caries-producing), and, possibly, a feeling of satiety as to appetite which, were the more finely-prepared and divided food-stuffs used, might not come ere more than really sufficient for individual wants had already been eaten. Mr. Wallace has particularly interested himself in this food-preparation question, so the contents of these pages may be taken to be the result of no small amount of forethought upon his part.

La Nature Syphilitique et la Curabilité du Tabes et de la Paralysie générale. Par L. E. LEREDDE. Paris : C. Naud, 1903. Pp. 141.

THAT a large number of cases of tabes and of general paralysis present a syphilitic history is admitted by almost all writers ; but there are some, notably Professor Fournier, who hold that these diseases are not truly syphilitic, since they may occur without a previous syphilitic infection, and because they are not influenced by a mercurial treatment. The syphilis, when it does precede tabes or general paralysis, acts as a predisponent. These, and other diseases which are syphilitic in origin, but not in nature, Fournier calls *parasyphilitic*.

The object of Dr. Leredde's *brochure* is to combat this view and to maintain the following theses :—

" The affections which in 1902 are called tabes and general paralysis are, in syphilitics, affections of a syphilitic nature, curable by mercurial treatment. This fact has been overlooked—

" *Firstly*, because the mercurial treatment has not been carried out systematically and with sufficient doses.

" *Secondly*, because, like all other lesions of the nervous system, the syphilitic lesions of tabes and of general paralysis induce secondary lesions, and the symptoms, at first curable, become subsequently definitive. The longer the morbid process has lasted the more evident are the symptoms of this order.

" *Thirdly*, because histologists, who can sometimes by microscopic examination affirm the syphilitic nature of a lesion, have thought

that they could affirm in the name of pathological anatomy that certain lesions were not syphilitic, so that their nature was unknown.

"Tabes and general paralysis (in syphilitics) are not independent morbid entities, but simply anatomico-clinical modalities united to a particular diffusion, to a slow evolution of the syphilitic process. Between them and the typical forms of cerebral or spinal syphilis all transitional forms occur."

The work is mainly of a polemical character, and we are unable to follow the writer through all his arguments, which scarcely admit of condensation into the space at our disposal. Probably the part which will be found of most interest is the description of the method of treatment recommended by the author, and followed with great success. He holds that the efficacy of the different mercurial preparations is in proportion to the percentage of mercury they contain. He therefore selects calomel. Inunction he altogether neglects, and thinks that administration by the mouth is far inferior to that by injection. We must refer to the text for the details of the methods and doses. Indeed, the whole book will be found interesting reading, and we can most cordially recommend it to both physicians and surgeons.

A Hand-book of Physics and Chemistry: Adapted to the Requirements of the First Examination of the Conjoint Examining Board of the Royal College of Physicians and Surgeons, and also for General Use. By H. E. CORBIN, B.Sc. Lond., M.R.C.S.; and A. M. STEWART, B.Sc. Lond.; Science Master in Brentwood School. With 128 Illustrations. Second Edition. London: J. & A. Churchill. 1903. Pp. 437.

WHAT can be said of a book claiming to be a students' guide to physics from which the subjects of light and sound have been wholly omitted? The student who has mastered this work will know nothing about lens, or mirror, or prism. Surely some knowledge of the laws of optics should enter into the course prescribed for medical students. Or is it that the fault lies with the curriculum of the Royal Colleges of London for the requirements of the Conjoint Examining

Board, of which this "hand-book" is said to be "adapted"? If so, of a truth a lurid light is cast upon the insufficiency of the examinations of that Board.

Some matters are not sufficiently explained in this work. Thus, though the Leyden jar is described and figured, we receive no hint as to how condensers act.

The part of the book which deals with chemistry is better than that on physics, and is sufficiently full for the ordinary medical student. It is written in a clear and lucid style, and illustrated with many equations.

The printing and paper leave nothing to be desired.

Modern Materia Medica and Therapeutics. By A. A. STEVENS, A.M., M.D.; Lecturer on Physical Diagnosis in the University of Pennsylvania, &c. Third Edition. Entirely re-written. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

WE congratulate Dr. Stevens on the third edition of his book on *Modern Materia Medica and Therapeutics*. It is not merely a new edition; it is, practically, a new work, for it has been entirely re-written and re-arranged, so that with the experience gained by the two former editions, we have something entirely fresh, which at the same time is not a first effort.

The subject is an extremely difficult one to treat in a manner that will be readable and interesting as well as useful, but Dr. Stevens has succeeded in doing this. Abstruse chemical formulæ are not given a premier place, though they are not ignored. The reader, therefore, gets at once into the practical consideration of the drugs with their action and uses, and this is given concisely, and in most simple language. To take one example:—Usually in works of this kind "ether" is discussed briefly, chiefly as regards its physiological action and uses; but here two and a half pages are, in addition, devoted to its administration as an anæsthetic; accidents during anæsthesia; after effects; and contra-indications. As an anæsthetist with considerable experience, we can say we have never seen in this short compass, or in any non-special work on

anæsthetics, so many practical points drawn attention to for the help and guidance of an inexperienced anæsthetist.

Though it is founded on the United States Pharmacopœia, we can recommend it to British readers, as there are, in every page, many valuable hints and suggestions.

In the section on "Remedial Measures other than Drugs" we have a most interesting and valuable fifty pages of well-selected and fully-recognised remedies. These are discussed briefly and without bias. That the section is up to date is evidenced by the inclusion of Fränkel's "Treatment for the Ataxia of Tabes Dorsalis"; Schott's "Treatment by both Exercises and Baths"; "Light and X-ray Treatment"; and "Lumbar Puncture."

About 130 pages are devoted to "Applied Therapeutics," and here again we can praise the way in which the section is handled. The writer is evidently a practical physician, but the special study that he has given to the action and uses of drugs has not made him, on the one hand, an enthusiast, or on the other a sceptic, as to their value in the treatment of disease. For instance, the very first article in the section—viz., enteric fever—is a model of rational and practical treatment such as we have rarely seen equalled in a treatise on the Practice of Medicine. Take, for instance, the treatment of "perforation." He wastes no time discussing the medicinal treatment, but begins "Recovery from peritonitis is so exceedingly rare under medicinal treatment that operative interference is called for in all cases which are not obviously moribund. The operation should be done at the earliest possible moment." He then, in a few lines, gives Osler's statistics in support of his assertion. On cholelithiasis he begins—"Gall-stones in the gall-bladder or biliary passages cannot be dissolved," and so he soon disposes of that part of the question. But he then goes on to give valuable directions for the management and treatment of such cases, ending up with surgical intervention and the indications for it.

Enough has been given in illustration to show that this section on applied therapeutics is of rare and practical interest. It is written in a clear, impressive manner, brief and to the point, with no unnecessary verbiage, but backed

up, not with examples of his own experience, but with the larger experience reflected in collected statistics.

"Instead of considering the drugs in alphabetic order, as in previous editions, he has thought it best in the present revision to classify them according to their pharmacologic action." In this, we venture to think, he has not made a wise decision. We are all accustomed to turn up our Pharmacopœia or *Materia Medica* expecting to find the required drug in its alphabetic position, but in this case we must first consult the index, for if we first consider what is the action of the drug and then look for it amongst those with similar action, we may be irritated, on finding it, by being referred off to some other group—the action we first thought of not being considered by the author its chief action, under which he has discussed it. Again, the various groups are not arranged alphabetically. We first have the various "Stimulants," in the middle will be found "Astringents," and at the end "Flavouring Agents." So, again, it would be hopeless to look up a drug under its class without applying to the index. On consulting the index for "Aromatic Sulphuric Acid" we find "*Acidum Sulphuricum*," p. 441, but on looking there only get the formula of the preparation we want, and have to go back and find another reference to p. 258. Here, under the anhidrotics we find the therapeutic note of the preparation we want, but all this seems to waste time and cause irritation. The arrangement chosen is assuredly more scientific, but it is much less convenient, and we are sorry the author has adopted it.

The dosage is given both in apothecaries' weights and measures and also in the metric system, which will be found very convenient.

The book is well and clearly printed, and turned out in the good style of the well-known publishers Messrs. W. B. Saunders & Company.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.*

By SIR CHARLES A. CAMERON, C.B., M.D.; D.P.H., Camb.; M. and Hon. F.R.C.P.I.; F.R.C.S.I.; F.I.C.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; Vice-President and Ex-President of the Royal Institute of Public Health, and of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, and Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee, &c.

RELATIONSHIP OF HUMAN TUBERCULOSIS TO BOVINE TUBERCULOSIS.

At the very meeting at which Professor Koch read his paper which seemed to prove that human and bovine tuberculosis were distinct diseases, expressions of dissent were heard. Since then there have been several experimental investigations made with the object of verifying or refuting Koch's startling announcement. The latest of these investigations is that carried out by Dr. D. J. Hamilton, Professor of Pathology, and Mr. J. M'Lauchlin Young, Lecturer on Veterinary Hygiene, in the University of Aberdeen.

Koch argues that the rarity of primary tuberculosis of the intestinal tract is a proof that tuberculosis is not caused by ingestion of food derived from infected animals. The authors take exception to this contention, and assert that it has absolutely no weight, unless it could be proved that the

* The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

tubercle bacillus is incapable of passing through the intestine to the abdominal glands without occasioning an intestinal lesion.

The authors' experiments were carried out at the instance of the Agricultural Committee of the University of Aberdeen and the Highland and Agricultural Society of Scotland. There were four series of experiments. In the first series experiments were made with—(1) a black Aberdeen-Angus female calf fed with tubercular sputum mixed with milk, on eighteen different occasions, spread over a period of 69 days; (2) a black Aberdeen-Angus bull calf, similarly treated during 66 days; (3) a Hereford bull calf treated like No. 1, died 37 days after the beginning of the experiment; (4) a Hereford female calf, 3 weeks old, treated as in the case of No. 1—it was slaughtered 65 days after the commencement of treatment; (5) a shorthorn bull calf, 10 days old, treated like the other animals, and slaughtered on the 65th day.

In the second series of experiments six calves were inoculated subcutaneously on the inside of the right thigh with several pieces of a group of enlarged glands removed from the left side of a woman's neck in one case, from that of a boy in another case, in a third with tubercular glands from the neck of a lad aged 13 years. In the fourth experiment the infected glands were taken from the leg of a boy aged 14 years. The fifth experiment was made with a piece of lung taken from a man who died from general miliary tuberculosis, and in the sixth experiment the infecting material was urine from a man suffering from genito-urinary tuberculosis.

In the third series of experiments three calves were inoculated with—(1) cheesy tubercular glands taken from the neck of a young woman; (2) with human tubercular glands; (3) with human tubercular sputum. A fourth calf was made to inspire tubercular sputum in the form of spray; a fifth calf was similarly treated, and a sixth had tubercular sputum injected into the internal jugular vein.

In the fourth and last series of experiments two calves were used, with the object of ascertaining whether or not the tubercle bacillus of man inoculated upon the calf increased in virulence by being inoculated upon a second calf.

By the application of the tuberculin and other tests, the

authors satisfied themselves that all the calves operated on were, when the experiments commenced, free from tuberculosis.

The authors hold that their investigation proves the following:—

1. That although human tubercle is probably not so virulent for the calf as that derived from bovines, yet it can be readily inoculated upon that animal.

2. That this holds good whether the tubercle inoculated be derived from tubercular lymph-glands, tubercular lung, tubercular sputum, or tubercular urine.

3. That it produces this positive result irrespective of whether it be introduced by feeding the animal with the tubercular material, by subcutaneous inoculation upon a peripheral part, by respiring a spray containing the bacillus, or by injection into the venous system.

4. That the organs most affected are those in immediate connection with the part operated upon.

5. That the lymphatic system is constantly involved in the resulting tuberculosis.

6. That when administered by the mouth tubercular sputum induces an abdominal lymph-gland tuberculosis without necessarily the intestine being in any way involved.

7. That when tuberculosis from a human source has been ingrafted upon a calf it gains enormously in virulence by being reinoculated upon a second calf.

8. That the morphological characters of the bacillus may vary according to circumstances, and are no guide to the source of the organism under observation.

9. That the above facts go to favour the view that the human bacillus and that of bovines are indetical, but modified somewhat by their environment.

10. That our results are a direct contradiction of those alleged to have been obtained by Koch and Schütz.

HEALTH OF CALCUTTA.

I have been favoured by Dr. J. N. Cooke, the able Health Officer for Calcutta, with his report on the health of that city for 1902. A few particulars from it will prove interesting to many of the readers of this Journal.

The number of houses (including dwellings on the canal), in 1901, was 114,960. The population numbered 847,795—562,595 males, and 285,200 females. The figures, which require checking, show an increase of 166,236. The houses increased by 47,432, so that there was a greater proportional increase of houses than of people, which seems to show that there was less overcrowding in 1902 than in 1901 or 1891.

The birth-rate could be estimated (owing to the peculiar seclusion of the native female population) only at 26.3 per 1,000 persons living.

The death-rate was 37 per 1,000. Plague caused a high mortality. If the deaths caused by it were eliminated the death-rate would be 28.4 per 1,000.

The infantile death-rate—i.e., of children under one year—was as follows :—

Nationality				Ratio per 1,000 Births
Hindus	..	..	..	401.3
Mohammedans	..	..	..	843.6
Christians	..	..	..	242.2
Other Classes	..	..	..	320.8
Total				491.0

Contagious disease caused in Calcutta a death-rate equal to the death-rate from all causes of many British cities.

There is a large sanitary staff in Calcutta, and the Sanitary Acts and those relating to food seem to be as vigorously enforced as the peculiar conditions of an Eastern city admit. There are five food inspectors alone. The cost of the Health Department in 1902 was 248,653 rupees.

THE SMALL-POX EPIDEMIC IN DUBLIN, 1903.

On six different occasions in 1902 small-pox appeared in Dublin.

On the 7th of February a man in a nightly lodging-house in Townsend-street developed this disease; it was proved that he had been infected in Glasgow. He was removed at once to hospital, and the thirty occupants of the lodging-house were conveyed to the Corporation Refuge. re-vaccinated promptly, and detained there until the period

of incubation of small-pox had expired. One of the "contacts" developed small-pox, and was sent to hospital. The clothes, &c., of the patients were destroyed by fire, and thorough disinfection of the lodging-house was carried out. No further case occurred until February 12th, when a girl affected with small-pox was removed from Hardwicke-street to the Hardwicke Hospital. The usual precautions to prevent the disease from spreading were adopted, and no further case occurred until April 19th, when a sailor, ill from small-pox, was removed from a coasting steamer to hospital. The ship was disinfected, and some workmen who had been on board were detained for some days in the Refuge.

On the 3rd of August a case of small-pox was removed from a Glasgow steamer to Cork-street Hospital. From this case a second one soon arose in the hospital, and, as I shall try to prove later on, the contagium from the first patient was ultimately a main cause in the epidemic of 1903.

On the 22nd of December a sailor was removed from Newfoundland-street to hospital. He had been on a Liverpool ship, and no doubt had contracted small-pox in Liverpool. The usual precautions as regards disinfection, isolation of "contacts," &c., were adopted; but this case proved to be one of the causes of an epidemic.

On the 23rd of December a lad, aged nineteen, was admitted into the Hardwicke Hospital from Old Lisburn-street. His disease was erysipelas, but on the 9th of January, 1903, he developed small-pox. It is clear that he was infected in the hospital by the patient from Newfoundland-street, as there was no other case of small-pox in Dublin at the time.

On the 26th of January a patient in Cork-street Hospital exhibited unmistakable symptoms of small-pox.

The house No. 56 Church-street was, in December, 1902, occupied by 13 families, comprising 42 persons. All were poor, some in almost absolute want. From December 16th, 1902, to January 19th, 1903, 16 inmates of this house contracted typhus fever—a disease formerly prevalent in Dublin, but for some years past of rare occurrence. A girl, aged seventeen, who resided at 56 Church-street, and who had recently recovered from typhus fever, feeling unwell, attended at the Dispensary in connection with the House of Industry

Hospitals, North Brunswick-street, early on Monday, February 2nd. It appears that she had been unwell for five days, and had a rash on her on the 1st of February. She was for more than an hour in the dispensary in the midst of thirty-five people before she was examined, and found to be suffering from small-pox. I arrived at the dispensary soon after the discovery of the case of small-pox. I detained all the persons who were in the dispensary until their names and addresses were taken down. They were then allowed to go home, but before evening all the clothing they had on in the dispensary was removed to the disinfecting chamber and thoroughly disinfected, clean clothing having in the meantime been supplied to them. The patient was taken into an isolation ward in the Hardwicke Hospital, where there was no other patient. Her clothes were burnt. The clothing and bedding of the persons who had been in immediate contact with her in her home were also destroyed. The inmates of 56 Church-street were at once removed to the Refuge, and detained there for twelve days. The house was disinfected and whitewashed, and large quantities of sulphur dioxide was liberated in a liquid state in the yard and immediate vicinity of the house so as to purify the atmosphere. All the "contacts" in the house and at the dispensary were re-vaccinated. On the 11th of February a sister of this patient was admitted to the small-pox ward of the Hardwicke Hospital, and on the same day two of her brothers, aged twelve and nine years respectively. The following day a sister, aged seven years, was admitted, and another sister, aged one and a half years, on the 14th of February. On the 12th of February a child belonging to another family in 56 Church-street was received into the hospital.

A nurse attached to the Richmond Lunatic Asylum, whilst absent on leave somewhat more than a week, felt very unwell, and returned to the Asylum on the 7th of February. She proceeded in a *tram-car* (!) from Baggot-street to the North Circular-road. On examination she was found to be suffering from small-pox. She was at once conveyed to the Hardwicke Hospital. The Managing Director of the Tram Company was apprised of the fact that a small-pox patient had travelled in a Donnybrook tram-car, so that the tram-car might be properly disinfected.

On the 10th of February a girl, aged fourteen, residing in a house in Newfoundland-street, was discovered to be covered with the rash of small-pox. Her mother had endeavoured to conceal the case, for which she subsequently paid a penalty in the Police Court.

On the 12th of February a boy, aged thirteen, who was a "contact" at the Refuge, but who had resided in No. 56 Church-street, developed small-pox, and was brought to the Hardwicke Hospital.

On the 14th a child, aged fifteen months, in the Refuge was found to be affected with the disease. She had resided in the infected house in Church-street.

From the 14th of February to the end of March no further cases were notified. But the poison of the disease had been sown by the patients referred to, and a crop of new cases now began to appear.

On the 2nd of March a man, aged thirty-eight, who resided in Henry-street, presented himself at the dispensary attached to the Mater Misericordiæ Hospital, and was found to be affected with small-pox.

On the 4th of March a case, that of a man, aged thirty years, occurred in the North Dublin Union Workhouse, which institution joins the Hardwicke Hospital. This person was only two days in the Workhouse. He was a tramp, and had recently come to Dublin city from Liverpool, in which city it is likely that he had resided in one of its purlieus. He seems to have introduced infection into the Workhouse. He was acquainted with the family who resided in the house in North Anne-street, and of whom five members were small-pox victims.

On the 6th of March three cases occurred—one (that of an infant) in a house in North Anne-street, in which house 10 cases subsequently appeared; one (that of a girl aged sixteen years) in the Hardwicke Hospital; and one (that of a student) in Trinity College. The case of the student of Trinity College is somewhat perplexing. How he came to contract the disease admits, perhaps, of this explanation: he was a friend of several medical students, and had visited the hospitals of the House of Industry, one of which is the Hardwicke Hospital.

On the 8th of March a man aged twenty-six—an inmate of the North Dublin Union—contracted the disease. On the following day two cases appeared amongst the “contacts” located in the Refuge—namely, a woman aged twenty-seven, and a child of seven years, who had been removed from the infected house in North Anne-street.

On the 10th of March a case occurred in Upper Dominick-street. The patient was a woman, aged thirty. On the same day a woman, aged thirty-eight, residing in Henrietta-place, was removed to the small-pox hospital. The following cases occurred soon after :—March 11th, a man, aged forty-five, in Lower Dorset-street; 12th, a man, aged thirty-five, in Upper Church-street; 13th, a man, aged forty-three, in Jervis-street, and a man, aged twenty-four, in Wellington-street. On the 16th a man, aged sixty-two, was removed to the small-pox hospital from the North Dublin Union. On the 18th three cases occurred: one was that of a man, aged eighteen, residing in Capel-street; one, of a boy, aged sixteen, living in Poolbeg-street; and one that of a woman, aged thirty-eight, who resided in a house in North Anne-street, in which a previous case had occurred. On the 19th another case occurred in the house North Anne-street. The patient was a man, aged twenty-four years. On the same date a girl, aged nine, was removed from Marlborough-street to the small-pox hospital.

The disease now assumed alarming proportions, seven cases taking place on the 20th of March. They were as follow :—A girl, aged seven, in Linenhall-street; a girl, aged four, in Chapel-lane; a man, aged twenty-four, in Marlborough-street; a girl, aged six, in Beresford-street; a girl, aged eight, in Usher's-quay; a girl, aged fifteen, in North Brunswick-street; and a girl, aged four, in Bolton-court.

March 21.—Two cases—a girl, aged six, in Green-street, and a girl, aged nine, in George's-hill.

On the 22nd only one case was notified—that of a man, aged twenty-six years, in Church-street; but one was brought in from Raheny, Co. Dublin.

On March 23rd six cases occurred as follows :—A girl, aged eight, in Upper Church-street, and a girl, aged five,

in Church-street; one in the same house in Anne-street, already the scene of small-pox—namely, a boy of four years; a girl, aged six, in Mary's-lane; a girl of sixteen in Stirrup-lane; and a girl of seven in Great Britain-street.

On the 24th a girl, aged five, was removed to hospital from a house in North Anne-street, next but one to that in which the disease first occurred in that street. A second case—that of a boy, aged twelve—occurred in a house separated from the last-mentioned by one house.

On the 26th two cases were notified—that of a man, aged forty-six, in Lower Dorset-street, and of a girl, aged three, in Farrell's-lane, Constitution Hill.

On the 28th another case occurred in the North Dublin Union. The patient was a man, aged forty-eight years. On the same date two other cases happened—one (that of a girl, aged seven) in Little Denmark-street, and one (that of a boy, aged fourteen) in the same house.

On the 29th a very mild—almost uncertain—case of the disease occurred in Ulster-street, the patient being in a respectable position. It was found impossible to induce her to go to hospital.

On the 30th a man, aged fifty-seven, was removed from Marlborough-street to hospital.

On the last day of March a boy, aged four, was taken to hospital from Catherine's-lane, and a girl, aged eight, from Great Britain-street.

Case occurring in December, 1902—1; cases occurring in January, 1903—2; cases occurring in February—9; cases occurring in March—60—Total, 72. One of the cases was outside the city.

CASES OCCURRING IN APRIL.

Date	Residence	Sex	Age
1st	Great Brunswick-street	Male	30 years
"	Catherine's-lane	"	5 "
"	Do.	"	42 "
"	Do.	Female	42 "
"	Do.	"	3 "
"	North Dublin Union	"	21 "
2nd	Howth	"	37 "

Date	Residence	Sex	Age
3rd	Church-street	Male	46 years
4th	Francis-street	"	19 "
5th	Little Denmark-street	Female	6 "
7th	Do.	"	38 "
"	Do.	Male	18 "
"	Upper Tyrone-street	Female	10 "
"	Halston-street	"	30 "
8th	Stirrup-lane	"	15 "
"	Do.	"	14 "
9th	New Lisburn-street	"	25 "
"	Lock Hospital	"	30 "
10th	Church-street	"	23 "
"	Great Britain-street	"	35 "
11th	Do.	"	37 "
"	Do.	"	14 "
"	East Arran-street	"	8 "
12th	North George's-place	"	5 "
"	North King-street	"	13 "
13th	Hammond-lane	"	8 "
"	Dawson-court	Male	38 "
14th	Greek-street	Female	1½ "
"	Russell-place	Male	33 "
"	Green-street	Female	7 "
15th	St. Augustine-street	Male	20 "
"	George's-place	"	40 "
"	Lower Tyrone-street	"	35 "
"	Ball's-lane	Female	17 "
16th	Blackhall-place	Male	15 "
"	Upper Dorset-street	"	25 "
17th	Church-street	"	50 "
"	Red Cow-lane	"	35 "
"	Stoneybatter	"	33 "
18th	Church-street	"	38 "
19th	Marlborough-street	Female	28 "
"	Derby-square	Male	26 "
20th	Tyrone-street	"	21 "
"	Stanley-street Depot	"	36 "
"	Do.	"	60 "
"	Finglas, Co. Dublin	"	—
22nd	North King-street	"	14 "
25th	Church-street	Female	28 "

Date	Residence			Sex	Age
25th	Berkeley-place	..	..	Female	45 years
26th	Stirrup-lane	..	..	Male	40 "
"	Edward's-cottages	..	..	"	7 "
"	Marlborough-street	..	..	"	1 month
27th	Edward's-cottages	..	..	Female	36 years
"	Hardwicke-street	..	..	Male	32 "
28th	Beresford-street	..	..	"	11 "
"	Little Britain-street	..	..	"	48 "
"	Do.	..	..	Female	35 "
"	Stanley-street Depot	..	..	"	36 "
"	Hardwicke-street	..	..	Male	45 "
"	Do.	..	..	Female	46 "
29th	Little Britain-street	..	..	"	3 "
"	Do.	..	..	"	1 $\frac{1}{2}$ "
"	Do.	..	..	Male	4 "
"	Do.	..	..	"	40 "
"	Lower Kevin-street	..	..	"	17 "
"	Beresford-street	..	..	"	18 "
30th	Rere of 57 Arbour-hill	..	..	"	2 $\frac{1}{2}$ "
"	Albion Cottage, Inchicore	..	..	"	45 "

CASES IN MAY.

1st	Little Britain-street	..	..	Male	18 years.
"	Do.	..	..	Female	30 "
"	North King-street	..	..	Male	36 "
2nd	Lower Church-street	..	..	Female	37 "
"	Stafford-street	..	..	"	14 "
3rd	Cook-street	..	..	Male	4 "
"	Do.	..	..	Female	29 "
"	Mary-street	..	..	"	27 "
4th	Archibold-place	..	..	"	35 "
"	Henrietta-place	..	..	"	5 "
"	Rotunda Market	..	..	Male	23 "
"	Do.	..	..	"	25 "
"	Do.	..	..	Female	19 "
"	Do.	..	..	Male	15 "
"	Do.	..	..	"	11 "
"	Do.	..	..	Female	8 "
"	North Dublin Union	..	..	Male	22 "
5th	North Anne-street	..	..	Female	7 "
"	Broadstone-avenue	..	..	Male	25 "

Date	Residence			Sex	Age
7th	Charles-street	..	..	Male	14 years
"	Werburgh-street	..	..	Female	26 "
"	Church-street	..	..	Male	25 " "
8th	Do.	..	..	Female	56 "
"	Do.	..	..	Male	26 "
"	Do.	..	..	"	26 "
"	Granby-place	..	..	"	27 "
"	Reginald-street	..	..	Female	24 "
"	Kean's-court	..	..	Male	36 "
"	Stephen's-green north	..	..	Female	30 "
"	Derby-square	..	..	"	28 "
9th	Upper Dorset-street	..	..	Male	27 "
"	Refuge ; " contact " from Kean's-court			Female	34 "
10th	Church-street	..	..	"	17 "
"	Derrynane-parade	..	..	Male	46 "
11th	North Anne-street	..	..	Female	30 "
12th	Chancery-street	..	..	Male	52 "
"	Summerhill	..	..	Female	44 "
"	Bluecoat School	..	..	Male	13 "
13th	St. Thomas's-avenue	..	..	"	24 "
"	Lower Bridge-street	..	..	Female	4 "
14th	Mary's-lane	..	..	"	19 "
"	Blessington-street	..	..	"	28 "
"	Cook-street	..	..	Male	2 "
15th	Lower Tyrone-street	..	..	Female	40 "
"	Church-street	..	..	"	25 "
16th	Mary's-lane	..	..	Male	11 "
19th	Beresford-street	..	..	Female	30 "
20th	Meath Hospital	..	..	"	23 "
21st	Mary's-lane	..	..	Male	25 "
22nd	Grenville-street	..	..	"	30 "
"	Greek-street	..	..	Female	21 "
"	Church-avenue, Drumcondra	..	..	Male	35 "
"	Stafford-street	..	..	"	29 "
"	Rainsford-avenue	..	..	"	30 "
23rd	Capel-street	..	..	"	16 "
"	Emmett-road	..	..	Female	30 "
25th	North King-street	..	..	Male	32 "
"	Do.	..	..	Female	26 "
"	Mary's-lane	..	..	Male	18 "
"	Do.	..	..	"	24 "

Date	Residence	Sex	Age
24th	New-street	Male	50 years
26th	Manor-street	Female	32 "
"	Do.	Male	$\frac{1}{4}$ "
"	Church-street	Female	40 "
27th	Charles-street	"	23 "
28th	Angel-court	"	40 "
"	Great Britain-street	Male	29 "
"	Charles-street	"	30 "
"	North King-street	"	45 "

CASES IN JUNE.

2nd	Lower Gardiner-street	Male	32 years
4th	Lower Wellington-street	"	21 "
"	Do.	Female	57 "
"	Do.	Male	15 "
"	Do.	"	30 "
"	Do.	"	30 "
"	Moore's-row, off Tyrone-street	Female	30 "
"	9 Lower Wellington-street	Male	34 "
"	Lower Wellington-street	"	32 "
"	Upper Tyrone-street	"	48 "
5th	St. Kevin's-road	"	33 "
"	Cook-street ; worked in Church-street	"	16 "
6th	N. D. Union	"	51 "
"	Mountjoy Prison	"	26 "
7th	Lower Wellington-street	"	35 "
"	Graham's-row	"	30 "
"	Blessington-street	"	19 "
8th	Church-avenue, Drumcondra	"	$\frac{1}{3}$ "
"	Beresford-street	"	14 "
9th	Manor-street	"	5 "
"	Do.	Female	7 "
"	Refuge, Nicholas-street ; "contact" from Manor-street	"	60 "
11th	Upper Dorset-street	"	50 "
12th	Marlborough-street	"	30 "
13th	Steevens' Hospital	Male	28 "
14th	Wellington-street	"	$\frac{1}{4}$ "
15th	Prussia-street	Female	43 "
16th	Cook-street	"	12 $\frac{1}{2}$ "
"	Do.	"	6 "

Date	Residence	Sex	Age
16th	Cook-street	Male	18 years
18th	Whitefriar-street	"	3 "
"	Blessington-street	"	19 "
19th	Windsor-terrace	Female	23 "
"	Church-avenue	Male	5 "
20th	Monck's-place	"	25 "
22nd	Lower Dominick-street	Female	52 "
"	Lower Gardiner-street	Male	29 "
23rd	St. Joseph's Night Refuge ..	Female	27 "
25th	New Bride-street	"	8 "
26th	Refuge, Nicholas-street; "contact" from Whitefriar-street	Male	2 "
29th	Do. do.	Female	28 "
30th	New Bride-street; "contact" from Whitefriar-street	"	38 "
"	Bishop-street	Male	25 "

CASES IN JULY.

1st	Gate Lodge, Terenure	Male	62 years
"	Do.	Female	47 "
"	Do.	"	15 "
"	Do.	Male	28 "
3rd	Lower Dominick-street	Female	19 "
"	Lower Gardiner-street	Male	35 "
4th	Night Refuge, Poolbeg-street ..	"	32 "
5th	Upper Dorset-street	Female	27 "
"	Do.	"	24 "
"	Do.	Male	14 "
6th	Henrietta-street	"	1 "
12th	Great Clarence-street	"	50 "

ORIGIN OF THE EPIDEMIC.

There is no doubt as to the origin of the infection; it came from Liverpool and Glasgow, as has been already shown above.

As regards the nurse attached to the Richmond District Lunatic Asylum, it is to be noted that the incubation of her attack began in all probability before she left the Asylum, for she was barely over a week absent when her illness commenced. The Lunatic Asylum is not far from the Hardwicke Hospital, the workhouse only intervening between them. One

of the passages to the Asylum passes by the door of the Hardwicke Hospital. The patient in the Hardwicke Hospital was discharged on the 3rd of February. On the 7th of February the nurse had a small-pox rash out on her. As the disease often takes twelve days to incubate, it is only reasonable to conclude that the nurse's infection came from the small-pox case in hospital. At the time of her infection the only known case of the disease in Dublin was that in the Hardwicke Hospital.

The next cases to be accounted for are those of six members of the family in 56 Church-street who had recently recovered from typhus fever. The first of them who developed small-pox was a girl, aged seventeen, who presented herself at the Hardwicke Hospital Dispensary on the 2nd of February. This girl, I find, had been ill for five days before she sought medical assistance. On the 1st of February she had attended service in a Roman Catholic Church, and people had remarked a rash upon her. She was discharged from Cork-street Hospital on the 15th of January, and thirteen days later became ill, her illness proving to be due to small-pox. Now, it seems in the highest degree improbable that she contracted the disease after she had left the hospital, for small-pox was not in any place in January, with the exception of the two cases in the Hardwicke Hospital. The question is: How did the girl get infected in the hospital? I think it can be answered as follows:—There were two cases of small-pox in Cork-street Hospital up to the first week in October. The usual disinfection followed on the discharge of the patients, and it would seem unlikely that any of the contagious matter of the disease could remain. That some of it, however, did remain is evident from the fact that a girl who had been for several weeks a patient in the hospital developed small-pox, on the 26th of January—eleven days after the girl from Church-street had left the hospital.

I attribute the small-pox epidemic of 1903 nearly altogether to the imported case at Newfoundland-street and to that of the sailor who was admitted into Cork-street Hospital in August, 1902, and who was discharged from that institution in October of that year.

On the 11th of February a sister of the girl from 56 Church-

street was stricken with small-pox. This case and the others in this house can clearly be attributed to the infection from the first case, which occurred ten days before in the same house.

A second case of small-pox was discovered concealed in Newfoundland-street on the 10th of February. The patient, a girl of fourteen years, had been ill for several days previously. She resided in a cottage next to one from which a case had been removed, as already stated, on the 22nd of December. Although the latter cottage had been thoroughly disinfected, and the family of the patient removed to the Refuge, it is possible that the infective matter of the disease might have got into the adjacent cottage. The father of the girl was employed on a vessel which traded between a small-pox infected port in England and Dublin. He might have been the vehicle of the contagion, but it seems more likely that it came from the house next door to the patient, and probably before the infected house was disinfected and closed for more than a week. The "contacts" in the latter house escaped the disease.

On the 2nd of March a man presented himself at the Dispensary of the Mater Misericordiæ Hospital, and was found to be suffering from small-pox. He had resided in an establishment in Henry-street. I could not satisfactorily trace the origin of his attack. The only explanation that can be given is the following:—Many girls from infected houses worked in a factory in Great Britain-street, and it is stated that some of them purchased articles in the Henry-street shop.

A case occurred in the North Dublin Union Workhouse on the 4th of March. The patient was a tramp from Liverpool. The workhouse could hardly escape infection, so many persons from infected areas going into it as inmates or visitors.

On the 6th three cases were notified—one in North Anne-street, one in the Hardwicke Hospital, and one in Trinity College. The patient in Anne-street was a girl who had relatives in Church-street, and whose family constantly visited that infected street. The tramp who had small-pox on the 4th March, and who had been in Liverpool, visited the family. I have already suggested that probably the student caught the disease during his visits to the hospitals in North Brunswick-street.

¶ On the 8th another case occurred in the North Dublin Union. Next day two persons, who had been removed to the Refuge from the infected house in Anne-street, developed the disease, and on the 10th a third "contact" from that house was removed from the Refuge to the small-pox hospital. On the same day a case was reported from Upper Dominick-street.

On the 11th a man residing in Lower Dorset-street was admitted to the hospital. He had been importing second-hand books from Liverpool, some of which might have been infected, as small-pox was very prevalent in Liverpool at that time. He may, however, have been infected locally, as so many others were in his locality.

On the 12th a man presented himself at a dispensary and was found to have small-pox. He had slept the previous night in a common lodging-house in Church-street, and had shared his bed with a fellow-lodger. His bed-fellow in due course was admitted to the small-pox hospital. I have no doubt that from his case many others sprang. In several subsequent cases, persons who had slept with persons affected with small-pox, even in a very early stage, caught the disease.

A case occurred in Jervis-street on the 13th. The patient had been in contact with a person affected with the disease. On the same day a case appeared in Wellington-street.

On the 16th a boy in the North Dublin Workhouse became affected. Two days later an inmate of the house in North Anne-street was removed to the small-pox hospital. On the same day a case occurred in Capel-street. The patient had been working in the Corporation Vegetable Market close to Anne-street; also on this day a case was discovered in Poolbeg-street, which is far from the infected area. He had, however, been a patient in the Hardwicke Hospital from the 27th of February to the 10th of March, and clearly was infected in that institution. He had not left his home after he had returned to it from hospital until he was removed to the small-pox hospital.

On the 19th of March another case was discovered in the now notorious house in North Anne-street, the inmates of which were kept under close observation. On the same day a girl, aged nine, had the disease. She had

been attending a school at George's-hill, which was quite close to North Anne-street, and which school, it was subsequently ascertained, children from infected houses had been attending.

On the 20th seven cases occurred in the following streets :—Linenhall-street, Chapel-lane, Beresford-street, Bolton-court, North Brunswick-street, Marlborough-street and Usher's-quay. The five places first named were in the infected district. As regards the Marlborough-street case, the patient had been in the infected house in Anne-street. The Usher's-quay case was, as regards its origin, obscure, but members of the family had been frequently in the infected area, which is not far from Usher's-quay. In the five houses in the infected area all the patients were children who had come in contact, either at school or in other places, with children in whose families there had been cases of small-pox.

On the 21st five children were ill with small-pox in the infected area—namely, two in Beresford-street, one in Church-street, one in Green-street, and one in an orphanage and school in George's-hill. Next day there was another case in Church-street, which street and North Anne-street were more affected by the disease than any others. On this day a man was brought into the small-pox hospital from Raheny. His wife was a constant visitor in the infected area, especially to the vegetable markets in it.

On the 23rd six cases occurred in the following streets :—Church-street (two cases), Mary's-lane, Stirrup-lane, North Anne-street (the same house in which so many cases occurred), and Britain-street. One patient was a girl of sixteen; the others were children from five to eight years old.

On the 24th a case occurred in a fresh house in North Anne-street, and one in another house which had hitherto escaped the disease. The patients had been mixing with people who resided in the infected houses.

From the 19th to the 24th of March, inclusive, twenty-two cases of small-pox had occurred, and of these only three were adults. The influence of two schools in the infected area was distinctly ascertained, all the children having been in contact with school-fellows who had small-pox, or who had come from

infected houses, or whose brothers and sisters had been in contact with patients or their families. A person who has been in contact with a small-pox patient may not contract the disease himself, but he may be the vehicle by which the contagion is conveyed to others.

During the remainder of March nine cases occurred, of which four were those of adults. All took place in the infected area, except one in Ulster-street (this was a doubtful case). A patient in Great Britain-street had been frequently in North Anne-street.

CASES IN APRIL.

Sixty-one cases occurred in April, all of them in the infected area except the following:—

Francis-street.—The patient had before his illness resided in the infected area.

The Lock Hospital, Townsend-street.—This was an “unfortunate” who had been in the infected area.

Russell-place.—The patient had been working with men who resided in North Anne-street and Great Britain-street, where cases of small-pox had occurred.

St. Augustine-street.—In this case a girl from an infected quarter of Liverpool had resided in the house for some time previous to going to America. A case of small-pox broke out in the family with whom she had lodged.

George's-place.—The patient had been a “contact” from an infected house in Great Britain-street.

Derby-square.—The patient was a scavenger, and worked in the infected district.

Inchicore.—The patient worked in company with several men who resided in the infected area, and in one house in particular from which several small-pox patients were removed.

Kevin-street.—The patient had been a “contact” in an infected house in Blackhall-place.

Tyrone-street.—Several cases occurred in this street and its immediate neighbourhood. The first one can be traced to the infected area, from which the patient had come some days previous to her illness. The other cases were no doubt due to the first one.

Finglas.—The patient was a man who had not been in

Dublin for eighteen months, but his wife constantly visited the infected area, especially the vegetable market.

CASES IN MAY.

Sixty-nine cases were notified in May, of which nine occurred outside the infected area.

Werburgh-street.—The patient worked in the infected area, and some of her fellow-workers came from infected houses.

Reginald-street.—The patient had been a "contact" in the infected area.

Stephen's-green.—The patient had visited a house in the infected district in which her sister had small-pox.

Derby-square.—The patient was the wife of a scavenger, who worked in the infected area.

Derrynane-parade.—The patient collected debts in the infected area.

Cook-street.—A second case in this house.

Meath Hospital.—The patient was in the same ward with another patient who developed small-pox just after admission to the hospital and was removed to the Isolation Hospital. The latter patient had resided in Werburgh-street, but she had worked in the infected area, and with persons from infected houses.

Emmet-road, Inchicore.—The patient resided close to the house in which a case of small-pox already referred to occurred.

New-street.—The patient had only recently left a highly-infected district.

Church-avenue, Drumcondra.—The patient was a Corporation night watchman, and had been on duty in some of the streets in which many cases of small-pox had taken place.

Rainsford-street.—The patient, a vanman, had been distributing cakes, &c., in the infected area, and particularly to a house in Church-street in which small-pox had occurred.

Bridge-street.—A child, aged four, was the patient in this case. She lived with her grandparents, one of whom was a rag gatherer, and frequented Anne-street and other infected streets. She was vaccinated for the first time the day she became ill, and it was stated that her father had inoculated her when she was very young.

New-street.—The patient was only a few days in New-

street, and had previously resided in Arbour-hill, where small-pox had occurred.

It was easy to account for the 60 cases in the infected area : mixing with school-children from infected houses caused many attacks. Many cases resulted from direct contact with small-pox patients.

JUNE.

In this month forty-two cases were notified, all of which occurred in the infected area, with the following exceptions :—

St. Kevin's-road.—The patient had worked with “contacts” from the infected area.

Cook-street.—The patient worked in Church-street, in which small-pox was prevalent.

Mountjoy Prison.—The patient had resided in Cook-street, in which cases of small-pox had occurred.

Church-avenue, Drumcondra.—A child, four months old, whose father was in the small-pox hospital.

Cook-street.—Three fresh cases occurred on 16th June in the house in Cook-street in which the disease had previously appeared.

Whitefriar-street.—The mother of the patient (a child aged three years) was a frequent visitor to relatives who resided in the infected house in Cook-street, and who were attacked by small-pox.

Windsor-terrace.—The patient—a young woman—had been frequently visiting and purchasing articles in the worst parts of the infected area.

The Night Refuge, Brickfield-lane.—The patient was a woman. As she wandered through the city she probably got the contagion of the disease in the infected area. She presented herself at the Medical Mission, Chancery-place, which was close to many infected houses.

New Bride-street.—The father of the patient (a child, aged seven) visited the infected area. Subsequent to the removal of the child to hospital it was discovered that her mother had almost recovered from the same disease. She was sent to the Convalescent Home, Beneavin.

Whitefriar-street.—This was a case of a “contact” who was brought to the Refuge, and from thence to the small-pox hospital.

Bishop-street.—The patient was a pawnbroker's assistant, in whose office the woman who had small-pox in New Bride-street had pawned infected clothing.

JULY.

There were twelve cases in July. Five took place in a gate lodge of a large institution at Terenure, County Dublin. The patients were a man, his wife, a son, and two daughters. The son was convalescent when the cases were brought under notice, and he had infected the other members of his family. It is not clear how he himself became infected. He was a tram-car conductor, and was daily in the city until he became ill.

The Night Refuge, Poolbeg-street.—The patient was a tramp, and roamed through all parts of the city.

Clarence-street.—I am inclined to the opinion that the patient received his infection from Liverpool, as he was employed on board vessels hailing from that infected port. His case terminated the epidemic.

As regards the cases in the infected area, there was no difficulty in discovering their origin in antecedent cases.

In this epidemic the vast majority of the persons attacked by the disease had been in actual contact with the sick or had resided in the same houses with them. The aerial transmission of the contagium of disease through sensible distances seems to have rarely been the case.

(To be continued.)

DEGREES IN VETERINARY MEDICINE.

At a meeting of the Senate of the Royal University of Ireland, held on Friday, July 31, 1903, on the motion of Sir Christopher Nixon, seconded by Judge Shaw, it was unanimously resolved :—
"That the Senate considers that Veterinary Medicine is entitled to have its claims for University Status recognised by the University; and that the Standing Committee be requested to take such steps as it may deem necessary to carry out this object."

TUBERCULOSIS.

ACCORDING to the recently published Blue Book of the Local Government Board for Ireland, 47 per cent. of all the deaths which took place in Ireland during 1901 of persons between the ages of 15 and 35 years were due to tuberculosis.

SANITARY AND METEOROLOGICAL NOTES.

11

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VITAL STATISTICS.

For four weeks ending Saturday, July 18, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending July 18, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 16.1 per 1,000 of their aggregate population, which for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, July 18, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	June 27	July 4	July 11	July 18			June 27	July 4	July 11	July 18	
22 Town Districts	20.5	17.7	17.8	16.1	18.0	Limburn	13.6	22.7	13.6	18.2	17.0
Armagh	41.2	13.7	21.6	31.4	27.5	Londonderry	26.5	12.6	12.6	10.1	13.5
Ballymena	23.9	14.4	23.9	0.0	15.6	Lurgan	31.0	8.9	31.0	17.7	22.2
Belfast	18.5	20.1	17.6	16.3	18.1	Newry	25.2	16.8	8.4	37.8	22.1
Clonmel	10.3	15.4	41.0	10.3	19.3	Newtownards	17.2	17.2	22.9	22.9	20.1
Cork	24.7	18.5	19.2	12.3	18.7	Portadown	15.5	10.3	20.7	25.8	18.1
Drogheda	12.3	24.5	28.6	12.3	19.4	Queenstown	6.6	6.6	26.4	13.2	13.2
Dublin (Reg. Area)	22.3	17.2	18.2	16.0	18.4	Sligo	0.0	14.4	4.8	23.8	12.0
Dundalk	12.0	8.0	19.9	12.0	13.0	Tralee	5.3	5.3	15.9	0.0	6.6
Galway	38.8	19.4	22.3	51.4	34.0	Waterford	17.5	19.5	7.8	11.7	14.1
Kilkenny	34.3	9.8	19.7	14.7	19.6	Wexford	23.3	18.7	23.3	14.0	19.8
Limerick	13.7	17.3	9.6	15.0	14.0						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, July 18, were equal to an annual rate of 1.4 per 1,000, the rates varying from 0.0 in twelve of the districts to 5.2 in Portadown—the 5 deaths from all causes registered in that district including one from measles. Among the 112 deaths from all causes in Belfast are one from measles, 2 from whooping-cough, 6 from enteric fever, and 3 from diarrhoea. The 18 deaths registered in Cork include one from scarlet fever, 2 from whooping-cough, and one from diphtheria.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, July 18, amounted to 188—101 boys and 87 girls; and the deaths to 124—62 males and 62 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 17.1 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the Area, the rate was 16.0 per 1,000. During the twenty-eight weeks ending with Saturday, July 18, the death-rate averaged 25.3, and was 1.9 below the mean rate for the corresponding portions of the ten years 1893–1902.

One death from small-pox was registered during the said week, that of a male aged 11 months, who was stated to have never been vaccinated. The total number of deaths from the disease during the 19 weeks ended July 18 was 32. There were 3 deaths from scarlet fever and one each from diphtheria, whooping-cough, and diarrhoea.

Tuberculous disease caused 38 deaths, including 4 from tubercular phthisis, 22 from *phthisis*, one from tubercular meningitis, one from tubercular peritonitis, 4 from *tuberc. mesenterica*, and 6 from other forms of the disease.

Two deaths were attributed to carcinoma, and one to *cancer (malignant disease)*.

Diseases of the nervous system caused 12 deaths, including 7 from *convulsions*. These last were all of children under 5 years of age, 6 being under one year old.

Diseases of the heart and blood vessels caused 17 deaths.

Diseases of the respiratory system caused 14 deaths, which is equivalent to an annual rate of 1.9 per 1,000 of the estimated population of the Dublin Registration Area, the average rate for the corresponding period of the previous 10 years being 3.0 per 1,000. Bronchitis caused 7 of the 14 deaths, broncho-pneumonia one, and *pneumonia* 2.

There were 2 deaths from accidental violence—including one from drowning, and one death by suicide was recorded.

In 9 instances the cause of death was “uncertified,” there having been no medical attendant during the last illness. These cases include the deaths of 8 children under one year old.

Thirty-seven of the persons whose deaths were registered during the week were under 5 years of age (25 being infants under one year, of whom 11 were under one month old), and 29 were aged 60 years and upwards, including 15 persons aged 70 and upwards, of whom 5 were octogenarians.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the “Infectious Diseases (Notification) Act, 1889,” as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast :—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended July 18, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	German Measles (rubella)	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Variola	Other Notifiable Diseases	Total
City of Dublin	June 27	6	2	-	19	-	-	0	1	2	13	16	-	4	1	73
	July 4	6	2	-	5	-	-	1	-	4	14	27	-	7	-	66
	July 11	4	2	-	21	-	-	7	-	2	11	11	-	17	-	75
	July 18	1	2	-	15	-	-	2	-	-	10	15	-	11	-	56
Rathmines and Rathgar Urban District	June 27	-	-	-	7	-	-	-	-	-	-	2	-	-	-	9
	July 4	-	-	-	6	-	-	-	-	-	-	1	-	-	-	11
	July 11	-	-	-	5	-	-	-	-	-	1	-	-	-	-	6
	July 18	-	1	-	4	-	-	-	-	1	-	-	-	-	-	6
Pembroke Urban District	June 27	-	-	-	2	-	-	-	-	-	-	4	-	1	-	7
	July 4	-	1	-	2	-	-	-	-	-	-	2	-	2	-	7
	July 11	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
	July 18	-	-	-	-	-	-	-	-	-	-	1	-	1	1	3
Blackrock Urban District	June 27	-	-	-	-	2	-	2	-	-	1	-	-	-	-	5
	July 4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
	July 11	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
	July 18	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Kingstown Urban District	June 27	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	July 4	3	-	-	-	-	-	-	-	-	-	-	-	1	-	4
	July 11	1	-	-	-	-	-	1	-	-	-	-	-	-	-	2
	July 18	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5
City of Belfast	June 27	-	-	-	6	-	-	2	1	26	10	6	-	-	-	60
	July 4	-	-	-	9	-	-	8	-	11	23	6	-	-	-	57
	July 11	-	-	-	9	-	-	1	3	22	17	2	1	-	-	55
	July 18	-	-	-	13	-	-	1	1	7	12	8	2	-	-	44

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, July 18, 1903, 7 cases of small-pox were admitted to hospital, 4 were discharged, there were 2 deaths, and 37 patients remained under treatment at its close. Besides these there were 28 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

One case of measles was discharged from hospital, and no cases of this disease remained under treatment at the close of the week.

Twenty cases of scarlatina were admitted to hospital, 22 cases were discharged, there were 3 deaths, and 104 cases remained under treatment at the close of the week.

Ten cases of diphtheria were admitted to hospital, 6 were discharged, and 25 cases remained under treatment at the close of the week.

Six cases of enteric fever were admitted to hospital, 6 cases were discharged, and 29 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, 5 patients were discharged, there were 2 deaths, and 33 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, July 18, in 76 large English towns, including London (in which the rate was 13.0), was equal to an average annual death-rate of 13.5 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 15.2 per 1,000, the rate for Glasgow being 14.9, and for Edinburgh 14.9.

VITAL STATISTICS.

For four weeks ending Saturday, August 15, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending August 15, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 16.6 per 1,000 of their aggregate population, which for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, August 15, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	July 23	Aug. 1	Aug. 8	Aug. 15			July 25	Aug. 1	Aug. 8	Aug. 15	
22 Town Districts	15.9	16.9	19.6	16.6	17.3	Lisburn	18.2	4.5	22.7	18.2	15.9
Armagh	20.6	20.6	6.9	6.9	13.8	Londonderry	12.6	20.2	23.9	15.1	18.0
Ballymena	0.0	9.6	9.6	9.6	7.2	Lurgan	35.4	17.7	31.0	17.7	25.5
Belfast	15.3	18.3	22.1	19.2	18.7	Newry	12.6	12.6	4.2	21.0	12.6
Clonmel	5.1	0.0	30.8	0.0	9.0	Newtownards	23.6	11.4	0.0	11.4	12.9
Cork	13.1	16.4	21.2	13.7	16.6	Portadown	10.3	20.7	20.7	5.2	14.2
Drogheda	16.3	24.5	20.4	20.4	20.4	Queenstown	0.0	6.6	6.6	6.6	5.0
Dublin (Reg. Area)	17.5	18.3	18.2	18.0	18.0	Sligo	4.8	4.8	4.8	0.0	3.6
Dundalk	16.0	12.0	0.0	4.0	8.0	Tralee	5.3	26.4	10.6	15.9	14.6
Galway	23.3	15.5	15.5	35.0	22.3	Waterford	19.5	9.7	17.5	7.8	13.6
Kilkenny	39.3	14.7	24.6	24.6	25.8	Wexford	4.7	18.7	23.3	4.7	12.9
Limerick	12.3	5.5	26.0	8.2	13.0						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, August 15, were equal to an annual rate of 2.1 per 1,000, the rates varying from 0.0 in fifteen of the districts to 4.4 in Lurgan. Among the 132 deaths from all causes registered in Belfast are one from measles, one from scarlet fever, 5 from whooping-cough, 4 from enteric fever, and 18 from diarrhoeal diseases. The 4 deaths from all causes in Waterford include 2 from diarrhoeal diseases.

DUBLIN REGISTRATION AREA

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, August 15, amounted to 199—94 boys and 105 girls; and the deaths to 136—82 males and 54 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 18.7 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the Area, the rate was 18.0 per 1,000. During the thirty-two weeks ending with Saturday, August 15, the death-rate averaged 24.5, and was 2.2 below the mean rate for the corresponding portions of the ten years 1893-1902.

Not one death from small-pox was registered, nor was any fresh case of the disease reported as occurring during the said week. One death resulted from each of the following diseases—viz., measles, influenza, whooping-cough, and diphtheria. Two deaths were due to enteric fever, and 2 to diarrhoeal diseases.

Of 30 deaths assigned to tuberculous disease, 9 were from tubercular phthisis, 14 from *phthisis*, 3 from tubercular meningitis, one from tubercular peritonitis, 2 from *tabes mesenterica*, and 1 from tuberculosis.

Five deaths were attributed to carcinoma, and 2 to *cancer* (*malignant disease*).

Of 17 deaths from diseases of the nervous system, 7 were due to *convulsions*, 6 of the latter being of infants under one year of age.

Diseases of the heart and blood vessels caused 18 deaths.

The deaths (20) from diseases of the respiratory system are equal to an annual rate of 2.8 per 1,000 of the population—the annual average rate for the corresponding period of the past 10 years being 2.2 per 1,000. The total (20) includes 12 deaths from bronchitis, one from croupous pneumonia, 2 from bronchopneumonia, and 3 from *pneumonia*.

There was 1 death from accidental violence, and 1 death by suicide.

In 13 instances the cause of death was “uncertified,” there having been no medical attendant during the last illness. These cases include the deaths of 7 children under 5 years of age (including 6 infants under one year old) and the deaths of 4 persons aged 60 years and upwards.

Thirty-eight of the persons whose deaths were registered during the week ended August 15 were under 5 years of age (28 being infants under one year, of whom 12 were under one month old), and 37 were aged 60 years and upwards, including 16 persons aged 70 and upwards, of whom 6 were octogenarians.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Disease (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast:—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended August 15, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	German Measles (Rubella)	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	July 25	-	-	2	14	-	-	3	-	5	7	15	-	5	-	51
	Aug. 1	-	3	1	15	-	-	2	-	3	26	-	-	6	-	56
	Aug. 8	-	-	1	12	2	-	6	-	1	19	16	-	7	1	65
	Aug. 15	-	1	1	7	-	-	4	-	-	9	17	1	6	2	43
Rathmines and Rathgar Urban District	July 25	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
	Aug. 1	-	1	-	3	-	-	5	-	-	-	-	-	-	-	9
	Aug. 8	-	1	-	5	1	-	7	-	-	-	-	-	-	-	14
	Aug. 15	-	-	-	6	-	-	-	-	-	1	-	-	2	-	9
Pembroke Urban District	July 25	-	-	-	2	-	-	-	-	-	1	1	-	-	-	4
	Aug. 1	-	2	-	5	-	-	-	-	-	-	1	-	-	-	8
	Aug. 8	-	-	-	2	-	-	2	-	-	-	-	-	2	-	6
	Aug. 15	-	-	-	1	-	-	1	-	-	2	1	-	1	-	6
Blackrock Urban District	July 25	1	-	-	1	-	-	-	-	-	-	-	-	1	-	3
	Aug. 1	-	-	-	2	-	-	-	-	-	2	-	-	-	-	4
	Aug. 8	-	-	-	1	-	-	-	-	-	1	-	-	-	-	2
	Aug. 15	-	-	-	-	2	-	-	-	-	-	-	-	3	-	5
Kingstown Urban District	July 25	3	-	-	-	-	-	-	-	-	-	-	1	-	-	4
	Aug. 1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Aug. 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aug. 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Belfast	July 25	-	-	-	3	-	-	3	-	8	15	5	2	-	-	36
	Aug. 1	-	-	-	3	-	-	-	-	24	23	7	1	-	-	63
	Aug. 8	-	-	-	2	-	-	2	-	24	23	9	3	-	-	69
	Aug. 15	-	-	-	6	-	-	1	2	18	22	6	-	-	-	55

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, August 15, 1903, not one case of small-pox was admitted to hospital, 2 were discharged, and 10 patients remained under treatment at its close. Besides these there were 15 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street, Fever Hospital.

Thirteen cases of scarlatina were admitted to hospital, 16 cases were discharged, there was one death, and 110 cases remained under treatment at the close of the week.

Three cases of typhus fever, which had been admitted to hospital in the previous week, remained under treatment at the close of this week.

Six cases of diphtheria were admitted to hospital, 7 were discharged, one case died, and 24 cases remained under treatment at the close of the week.

Fourteen cases of enteric fever were admitted to hospital, 4 cases were discharged, one case died, and 46 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 3 cases of pneumonia were admitted to hospital, 4 patients were discharged, there was one death, and 14 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, August 15, in 76 large English towns, including London (in which the rate was 14.2), was equal to an average annual death-rate of 15.7 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 15.4 per 1,000, the rate for Glasgow being 16.3, and for Edinburgh 12.2.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of July, 1903.

Mean Height of Barometer,	-	-	29.910 inches.
Maximal Height of Barometer (9th, at 9 a.m.),	30.345	„	
Minimal Height of Barometer (16th, at 6 p.m.),	29.477	„	
Mean Dry-bulb Temperature,	-	-	58.3°.
Mean Wet-bulb Temperature,	-	-	55.3°.

Mean Dew-point Temperature, -	-	-	52.6°.
Mean Elastic force (Tension) of Aqueous Vapour,			.399 inch.
Mean Humidity, -	-	-	81.9 per cent.
Highest Temperature in Shade (on 9th),			79.0°.
Lowest Temperature in Shade (on 7th),			44.1°.
Lowest Temperature on Grass (Radiation) (7th),			41.3°.
Mean Amount of Cloud, -	-	-	64.5 per cent.
Rainfall (on 23 days), -	-	-	4.018 inches.
Greatest Daily Rainfall (on 14th),			.517 inch.
General Directions of Wind, -	-	-	W., N.W., S.W.

Remarks.

An average month as to temperature, July, 1903, proved in other respects unfavourable, the weather being for the most part unsettled, and rain being both frequent and heavy. Thunderstorms were prevalent over Ireland, Scotland, and Wales on the 2nd. The week ended Saturday, the 11th, proved fine, warm, and dry in England, fine but cloudy in Ireland. A very severe thunderstorm occurred over the N.E. of England on the evening of Saturday, the 11th, exceptionally large hailstones falling at Fulbeck, Lincolnshire. On Thursday, the 9th, temperature rose in Dublin to 79.0°, the highest reading recorded in this city since July 17, 1901. Two days before the thermometer had fallen to 44.1° in the screen in the city. In the week ended Saturday, the 18th, the weather became very unsettled over the British Isles. Heavy rains fell in most districts, and thunderstorms occurred in central and southern England. In London, between 3 and 8 a.m. of the 18th, 1.50 inches of rain fell. The weather was still worse in the following week, when the rainfall was greatly in excess of the average over England and Ireland, though below normal in Scotland. On the morning of Friday, the 24th, 2.3 inches of rain were measured at Cambridge, and 2.0 inches at Shoeburyness (usually the driest station in England); and 3.15 inches was the record of the rainstorm at Greenwich Observatory. During the closing days the same uncertain weather prevailed. At 5 p.m. of Wednesday, the 29th, a notable shower fell at the Stillorgan Reservoir, Co. Dublin, at 5 p.m. This "cloud-burst," as it may well be called, yielded 1.82 inches of rain, 1.00 inch being measured in the first 17 minutes of the downpour. In Dublin and at Arva, Greystones, the measurement on that day was only .049 inch, so local was the shower. The duration of bright sunshine was estimated at 169.25 hours, or a daily average of 5.46 hours, com-

pared with a twenty years' average (1881-1900) of 166.8 hours recorded at the Ordnance Survey Office, Phoenix Park.

In Dublin the arithmetical mean temperature (60.1°) was slightly below the average of the 30 years 1871-1900 (60.3°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 58.3° . In the thirty-eight years ending with 1902, July was coldest in 1879 ("the cold year") (M. T. = 57.2°). It was warmest in 1887 (M. T. = 63.7°); in 1868 ("the warm year") and in 1901 (M. T. = 63.5°). In 1900 the M. T. was 63.4° .

The mean height of the barometer was 29.910 inches, or 0.005 inch below the corrected average value for July—namely, 29.915 inches. The mercury rose to 30.345 inches at 9 a.m. of the 9th, and fell to 29.477 inches at 6 p.m. of the 16th. The observed range of atmospheric pressure was, therefore, .868 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 58.3° , or 2.9° above the value for June, 1903. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* \times .465), the value was 59.6° , or 0.2° below the average mean temperature for July, calculated in the same way, in the thirty years 1871-1900 inclusive, (59.8°). The arithmetical mean of the maximal and minimal readings was 60.1° , compared with a thirty years' average of 60.3° . On the 9th the thermometer in the screen rose to 79.0° —wind, W.; on the 7th the temperature fell to 44.1° —wind, N.W. The minimum on the grass was 41.3° , also on the 7th.

The rainfall was 4.018 inches, distributed over 23 days. The average rainfall for July in the thirty-five years 1866-1900, inclusive, was 2.560 inches, and the average number of rainy days was 18. The rainfall, therefore, and the rainy days were much above the average. In 1880 the rainfall in July was very large—6.087 inches on 24 days; in 1896, also, 5.474 inches fell on 18 days. On the other hand, in 1870, only .539 inch was measured on 8 days; in 1869, the fall was only .739 inch on 9 days; and in 1868, .741 inch fell on but 5 days. In 1902, 3.163 inches fell on 17 days.

High winds were noted on 8 days, and attained the force of a gale on two occasions—the 5th and 6th. Temperature reached or exceeded 70° in the screen on 7 days, compared with the same number of days in July, 1902. In July, 1887, temperature reached or exceeded 70° in the screen on no fewer than 17 days. In 1888 the maximum for July was only 68.7° . On 2 days the thermometer failed to reach 60° .

Thunder was heard on the 2nd, 22nd, and 29th ; lightning was seen on the 22nd. There was a thunderstorm on the 26th, when hail fell. The atmosphere was foggy on the 16th, 17th, and 21st.

The rainfall in Dublin during the seven months ending July 31st amounted to 19.072 inches on 131 days, compared with 15.507 inches on 115 days in 1902, 11.432 inches on 93 days in 1901, 17.609 inches on 129 days in 1900, 14.416 inches on 107 days in 1899, 13.060 inches on 106 days in 1898, 15.600 inches on 125 days in 1897, 13.328 inches on 102 days in 1896, 16.785 inches on 96 days in 1895, 7.935 inches on 80 days in 1887, and a thirty-five years' average of 14.620 inches on 113 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in July was 2.790 inches on 17 days, compared with 4.550 inches on 11 days in 1902, 2.390 inches on 10 days in 1901, 5.140 inches on 15 days in 1900, 3.480 inches on 14 days in 1899, 1.145 inches on 6 days in 1898, 1.625 inches on 10 days in 1897, 5.726 inches on 16 days in 1896, and 3.680 inches on 16 days in 1895. Of the total rainfall .810 inch fell on the 25th. The total fall since January 1 has been 20.230 inches on 107 days, compared with 19.641 inches on 95 days in 1902, 16.060 inches on 85 days in 1901, 23.331 inches on 120 days in 1900, 22.990 inches on 109 days in 1899, 14.645 inches on 94 days in 1898, 19.750 inches on 116 days in 1897, 13.082 inches on 77 days in 1896, and 17.950 inches on 83 days in 1895.

At Cloneevin, Killiney, Co. Dublin, the rainfall in July was 3.54 inches on 19 days, compared with an eighteen years' (1885-1902) average of 2.625 inches on 15.1 days. On the 25th the rainfall was .74 inch. In July, 1902, 3.64 inches fell on 13 days ; in 1901, 2.80 inches fell on 13 days ; in 1900, 4.56 inches on 16 days ; in 1899, 3.48 inches on 17 days ; in 1898, .84 inch on 7 days ; in 1897, 1.28 inches on 10 days ; in 1896, 6.72 inches on 20 days ; in 1895, 3.58 inches on 17 days. Since January 1, 1903, 17.39 inches of rain have fallen on 122 days at this station, compared with 18.38 inches on 129 days in the corresponding 7 months of 1900, 13.54 inches on 95 days in 1901, and 16.90 inches on 111 days in 1902.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, County Dublin, the rainfall was 3.66 inches on 24 days. The maximal fall in 24 hours was .62 inch, measured on the 25th. The mean temperature was 60.7°, the range being from 78° on the 9th to

46° on the 7th. In July, 1901, 2.65 inches of rain fell at this station on 11 days, and in July, 1902, 4.27 inches on 19 days.

Dr. B. H. Steede reports that at the National Hospital for Consumption, Newcastle, Co. Wicklow, the July rainfall was 4.309 inches on 22 days, compared with 3.796 inches on 13 days in 1902. The maximal temperature in the shade was 75.5° on the 8th, the minimal shade temperature was 43.6° on the 7th. The heaviest daily rainfalls were .965 inch on the 25th, and .600 inch on the 27th. At this station the rainfall in June was 2.004 inches on 12 days; the thermometer rose to 71.7° in the screen on the 28th, and fell to 38.7° on the 14th. The rainfall from January 1 to July 31, inclusive, was 23.855 inches on 130 days, compared with 18.274 inches on 108 days in the first seven months of 1902.

At the Royal Botanic Gardens, Glasnevin, Dublin, rain fell on 21 days to the amount of 4.040 inches, the greatest rainfall in 24 hours being .800 inch on the 15th.

The rainfall at the Ordnance Survey Office, Phoenix Park, Dublin, was no less than 5.166 inches on 23 days. This large amount includes a measurement of 1.985 inches on the 17th.

At the Railway Hotel, Recess, Connemara, the rainfall was 6.815 inches on 22 days. On the 2nd, 1.270 inches fell in a thunderstorm accompanied by hail; and the maximal fall for the month was 1.300 inches on the 14th.

At Cork, 6.42 inches of rain fell, or 3.97 inches over the average, the number of rainy days being 17, and the greatest day's rainfall being 1.19 inches on the 15th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 59.4°, being 1.7° below the average for July during the previous 5 years. The extremes were—highest, 80°, on the 9th; lowest, 45.5°, on the 7th. At Bournemouth the mean was 62.3°, the extremes being—highest, 79°, on the 10th; lowest, 47°, on the 4th and 5th. The mean daily range of temperature at Kingstown was 13.1°, and at Bournemouth 15.1°. The mean temperature of the sea at Sandycove bathing-place was 56.5°, being 1.8° below the average for July during the previous 5 years. The rainfall was 3.34 inches on 16 days at Kingstown, and 2.86 inches on 14 days at Bournemouth. The total duration of bright sunshine at Kingstown was 179.3 hours, whereas it was 174.9 hours at Ordnance Survey Office, Phoenix Park, 127.7 hours at Parsonstown, 142.1 hours at Valentia, 190.1 hours at Southport, and 182.6 hours at Eastbourne.

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OF

MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*A Case of Trigeminal Neuralgia and Excision of the Gasserian Ganglion.** By T. E. GORDON, M.B., F.R.C.S.I.; Surgeon to the Adelaide Hospital.

AN operation for the removal of the Gasserian Ganglion has not, so far as I know, been previously reported at the Academy. It is an operation possessing many points of interest and difficulty; its results are eminently satisfactory. These things being so, I need not apologise for asking your attention to the history of the present case.

History of case before operation.—The patient was first attended by Dr. Cope, who sent her to the Adelaide Hospital to be under the care of Dr. Wallace Beatty. The following is Dr. Beatty's account of the case:—

Mrs. R., aged sixty-three, is a small, delicate-looking woman. Her family history revealed nothing of importance. She said she had always been of a nervous temperament, and had in her life much worry and anxiety. The first attack of neuralgia came on suddenly eight years ago, when she was coming down stairs, and made her shriek with pain. It lasted a few minutes. It began on the left side of the upper lip and cheek, and spread to the temple. Its character was as if a knitting-needle was bored into her left temple and turned round. The second attack occurred

*Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, May 15, 1903.

on the following day. Fresh attacks followed; at first there might be weeks' interval between the paroxysms; she noticed that they were not so frequent in the summer time till this year. At present the attacks are very violent and frequent, coming on every ten minutes or so, and lasting about a minute or a fraction of this time, and they usually begin in the left side of the head, the temporal and fore part of the parietal regions, but sometimes in the face. The paroxysms are most severe at night, giving her fearful nightmares and awakening her. The pain was on one occasion so severe and maddening that she attempted to kill herself with a razor, and was only prevented by her daughter coming into the room and arresting her in the act of suicide. The woman was in a pitiable state when she presented herself for admission to the hospital. She was some weeks in the hospital before surgical treatment was adopted. During this time she had to be given repeatedly hypodermic injections of morphin. The paroxysms of pain were excited in many ways in addition to coming on spontaneously. Thus moving of the jaws in mastication, the effort of speaking, the entrance of a person into the ward, brought on a paroxysm. All the branches of the left trigeminal nerve seem to have been affected from time to time, except the lingual. At one time when pain was severe she noticed an increase of saliva, but this was not a constant or pronounced symptom. Tears would flow occasionally from the left eye. Tender points were present in different places. All her teeth had been extracted without relief. There was no anæsthesia. Taste was normal. The heart and lungs were normal. There was a little albumen in the urine, but no tube casts. The pulse was of low tension, about 80. She told me she thought the only cure was to kill her.

This is a sketch of her past condition up to the time Dr. Beatty handed her over to me.

This case may be regarded as a typical example of major trigeminal neuralgia. The woman in the later period of middle life, the almost sudden and causeless onset, the paroxysms of pain, at first separated by considerable intervals but later occurring every day and in response to the most trifling stimuli, all her teeth extracted in the vain hope of relief, her life made scarcely endurable by hypodermic injections of morphin—in all this the

patient but repeats the history of other victims of this disease. Not the least pitiless aspect of these cases is the absence of any tendency of the disease to shorten life. As the pain becomes greater and frequent almost to be continuous the patient resorts to increasing doses of hypnotics, and as a result of this and the prolonged suffering develops a melancholic insanity, or obtains in suicide a relief from a hell of torture. I hope you will not think the picture overdrawn; the present case is, as I have said, but a repetition of the history of many others, and if any think the description an exaggeration they have not met with the disease under consideration, and they are not in a position to discuss the ethics of the operation for its cure. Drug treatment may give some relief, but it is almost certain to fail in the end, and so the case comes under the care of a surgeon. It is unnecessary to draw attention to all the operations performed for the cure of this disease. I think the majority of surgeons are satisfied that all ordinary neurectomies are likely to fail. The pain disappears of course after the neurectomy, but generally returns in two or three years. It is rather more than ten years since Horsley for the first time excised the Gasserian ganglion. This operation is now regarded by many as the only operation to be recommended in cases of true major neuralgia of the fifth nerve.

Before describing the steps of the operation let me, as briefly as possible, recall to your mind the general anatomy of this nerve.

Anatomy of the fifth nerve.—In a dissection of the middle cranial fossa the Gasserian ganglion is found lying near the apex of the petrous bone. Its large sensory root is seen entering this region under the margin of the tentorium cerebelli and ending in the ganglion. Springing from the front of the ganglion we find the three main divisions of the nerve. The first of these divisions, the ophthalmic, lies most internal and passes to its distribution through the sphenoidal fissure. This distribution includes the eyeball and the skin of part of the nose, and all the fore part of the scalp. The second, or superior maxillary division, is seen leaving the mid cranial fossa by passing through the fora-

men rotundum. In addition to supplying the skin of the face and the mucous membrane of the nose and roof of the mouth, this nerve, it is of special interest to remember, supplies the teeth of the upper jaw. The third, or inferior maxillary division, leaving the cranium by way of the foramen ovale, supplies the lower teeth. Tri-facial neuralgia probably never originates in the area of the ophthalmic division, and this is significant, relative to the pathology of the affection, for this division alone has no part in supplying the teeth of either jaw. The inferior division has also within its area the mucous membrane of the floor of the mouth and the tongue and a wide cutaneous area (auriculo-temporal). The lingual branch has a special interest, seeing that it carries within it the fibres of the chorda tympani, the nerve of taste for the front of the tongue. I may further remind you of the motor element in this third division for the supply of the muscles of mastication. It is remarkable how slight is the inconvenience caused by the destruction of this motor nerve.

If we follow the large sensory root under the tentorium into the posterior fossa of the skull it will be seen to pass to its, so-called, superficial origin at the side of the pons. In transverse sections of this part of the brain the sensory root is seen traversing the fibres of the middle cerebellar peduncle to reach its nucleus, which is placed outside that of the motor root. The greater part of the sensory root does not, however, end here, but passes downwards and can still be clearly seen in sections where the decussating pyramids show that the level is near the lower end of the medulla.

Now it is all-important—and from our present point of view imperative—to bear in mind that the term deep *origin* is misleading. In a Golgi preparation the fibres of this spinal root of the fifth nerve will be seen to end as free arborisations about the cells of the nucleus, but to be in no sense processes of these cells. This nucleus is then to be regarded rather as the end than as the origin of the nerve. The fibres to which the cells do give origin belong to a higher system, and may be seen (in such a Golgi preparation as we are speaking of) sweeping across the medulla to reach a cortical path on the opposite side of the raphé. To find the true origin

of the sensory fibres of the fifth nerve we must, as in the case of the posterior spinal roots, look outside the central nervous axis and we have it in the Gasserian ganglion, which is the homologue of the ganglion of the posterior nerve root. The cells of the Gasserian ganglion are the genetic origin of the fibres, and they are also the trophic centre, for it has been shown that if the ganglion be destroyed all the fibres degenerate both peripherally and centrally; the nerve is blotted out of existence. Now in this we have the theoretical basis of the operation we are about to consider. If recurrence of pain after neurectomy is due to regeneration of nerve fibres, excision of the ganglion will make such regeneration impossible that so far they have had no case of return of neuralgia occur under such circumstances, it must be due to disease involving these higher neurons which we casually noticed a moment ago. Horsley and Krause, both writing recently, state that so far they have had no case of return of neuralgia after complete excision of the ganglion.

The operation.—The operation I elected to perform is that known as the Horsley-Krause operation. In this an opening is made in the temporal region of the skull; the brain and dura mater are together raised from the floor of the cranium as far as the points of exit of the second and third divisions of the fifth nerve; the space of Meckel is opened, thus exposing nerves and ganglion; finally, the nerves are divided and the ganglion with its large sensory root removed. We may conveniently recognise four stages in the operation.

In the *first stage* a large flap is turned down more or less horseshoe-shaped, and including a large part of the temporal muscle. An opening is then made in the skull with a medium-sized trephine, and this opening is enlarged as much as necessary with some form of forceps or rongeur (I used Horsley's prismatic bone forceps). The removal of bone should be ample, and in particular the bone should be clipped away well down to the base of the mid-cranial fossa. The attempt to preserve a bone flap is inadvisable, for it prolongs the operation and has been shown to be unnecessary. I had some difficulty in this stage of my operation owing to the presence of a bony canal for the middle menin-

geal artery in the fore part of the trephine area. The artery was necessarily torn, but the bleeding was easily arrested by a plug of Horsley's aseptic wax.

In the *second stage* the dura is raised from the mid-cranial fossa as far as the points of exit of the two lower divisions of the nerve. One knows when these points are reached by recognising two points of fixation of the dura. These constitute an important guide. That which demands all attention during this stage is hæmorrhage—more or less profuse, continuous venous oozing which obscures everything. In the experience of some this bleeding has proved uncontrollable, and it has been necessary to postpone the subsequent steps of the operation for several days, leaving meantime a gauze plug in the wound. Such experience is fortunately exceptional. As a rule, assiduous sponging with sterile pledgets of gauze and plugging of the foramina (particularly the foramen spinosum and foramen ovale) suffices to completely arrest the hæmorrhage. One naturally thinks here of a preliminary ligature of the external carotid artery. Horsley is emphatic in condemning this as a routine practice, and as a matter of fact plugging the foramen spinosum (thus controlling the vascular area of the middle meningeal artery) and plugging the foramen ovale (which will arrest the venous regurgitant bleeding from the pterygoid plexus) will do all that ligature of the external carotid could do. This ligature obviously could not influence bleeding from torn tributaries of the cavernous sinus.

The *third stage* includes the opening up of Meckel's space and the complete exposure of the nerves and ganglion. This space is opened by an incision through the dura just where the nerves are leaving the skull, and by a division of the arch of dura which passes from one of the openings to the other. Before discussing the details of this stage I wish to draw attention to certain anatomical relations.

The Gasserian ganglion lies, as we have seen, at the apex of the petrous bone. The bone underlying it is extremely thin, and there may indeed be only a layer of fibrous tissue separating the ganglion from the internal carotid artery. On the inner side the sixth nerve is a specially close relation

and has often been accidentally injured. The very intimate relation of the cavernous sinus to the ganglion and the ophthalmic division is well seen in a coronal section of a frozen head. The same section gives an idea of the depth at which the ganglion is placed, and thus shows to what extent the brain must be retracted during the progress of the operation. A knowledge of the position of the foramen spinosum is important, for it may be necessary to plug it when the field of operation is obscured in blood. It generally lies about half an inch behind, and to the outer side of the foramen ovale.

We now return to the operation and suppose the space of Meckel opened, and ganglion and nerves exposed. The middle meningeal artery is not necessarily divided during this stage, but on the whole it seems better to do so, with a view to getting as much room as possible. At this point it is necessary to decide whether one will remove the whole ganglion with the sensory root or merely tear away the outer part which belongs to the second and third divisions. I only removed the outer part, but I will, in future, endeavour to effect a complete excision, notwithstanding extra risk, in order to insure against recurrence of the neuralgia. To expose the ganglion for this complete excision it is important, as Cushing has indicated, to divide a fibrous layer which remains covering the ganglion after the general reflection of dura has been accomplished. This being done, one must next free the ganglion from its surroundings, beginning on the outer side.

This brings us to the *fourth and final stage* of the operation, in which the nerves are divided close to their points of exit from the skull and then freed by careful blunt dissection up to the ganglion, and this latter then removed by evulsion. If the evulsion is properly done the sensory root will probably tear away from the sides of the pons. In carrying out these steps of the operation the cavernous sinus is ever before the operator's mind, and it is very liable to injury despite all care. It is, however, satisfactory to know that in those cases where the sinus has been injured the hæmorrhage has been readily controlled by pressure and no ultimate harm has resulted. A fear of sloughing of the

cornea need not deter one from performing this complete operation. It is quite a rare complication, and when it does occur is not due to mere cutting off of nervous connections. This has been definitely proved by experiments. This unfortunate sequel is due to irritation, and implies generally a basal meningitis, or, in other words, sepsis.

Finally the plugs are removed, and the wound closed, but with a drain at its lower part.

I have given an account of what I believe to be the more important features of this operation. It is obviously an operation attended with much difficulty—difficulty, however, which can to a great extent be met by acquiring in the first instance an accurate knowledge of the anatomy of the middle cranial fossa. It is equally apparent that there are dangers attending it, and here it is encouraging to learn the low mortality of the operation in the experience of Horsley and Krause. Horsley, in 1901, recorded twenty-two operations with only two deaths; Krause, in the same year, gave the results of twenty-five excisions of the ganglion with three deaths.

In some cases there have occurred after-symptoms of brain injury, such as aphasia and ocular palsies resulting from accidental nerve lesions, but these have generally been transient only. In the case of my patient there occurred a partial third nerve paralysis which disappeared in a short time.

I saw this patient recently (about eight months after the operation), and found her in good health and entirely free from her neuralgia. The scar is very slight and the hair, having grown, conceals the depression.

In conclusion, let me ask you, before giving expression to an opinion on the merits of the operation, to bear in mind the gravity of the disease for which it is undertaken—the pain of maximal severity—the intervals of freedom becoming progressively shorter until in the end the suffering is continuous. Further, remember that, with no hope of natural cure, there is a strong tendency to melancholic insanity, and attempted suicide is so frequent as to be given by Krause as one of the symptoms of the disease. On the other hand, remember that, if the operation is successfully

performed, there is every reason to believe that the cure will be permanent.

I must not omit to express my indebtedness to Sir Victor Horsley for having given me the great advantage of seeing him perform this operation, and for advice regarding instruments and other things.

ART. XI.—*The Hygienic Aspect of Flax Manufacture.**

By HENRY S. PURDON, M.D.; Certifying Factory Surgeon, Belfast.

THE city of Belfast and the surrounding district are very extensively engaged in the linen industry—that is to say, the cultivation of flax, scutching, spinning of yarn, linen weaving, finishing and bleaching. There are no flax scutching mills near Belfast, but they are to be found in our country districts, where the farmers grow their flax crops. In these mills, the flax is bruised in rollers, so as to remove the outer coat or fibre, and this process was formerly a very dusty operation; however, the introduction and use of fans to extract and remove the dust from the atmosphere is now general, and the air is much purer. The persons employed in our scutch mills are so engaged only for a few months in the year, consequently when the scutching is over, they return to their usual “out-of-door” occupation.

The first stage of flax manufacture, as employed in our mills, is, I think, the most unhealthy. The process may be classed under the heads of heckling, sorting, machine heckling, carding and preparing. These workers are the most liable to pulmonary attacks, due to the inhalation of fine vegetable dust causing dyspnœa, called by the workers “pouce,” then mechanical bronchitis (“bronchite traumatique”) ensues, frequently terminating in fibroid phthisis. There are always more or less cough and loss of weight. These symptoms may go on for four or five years

* A Paper read in the Fourth Section (Hygiène Industrielle et Professionnelle) of the International Congress of Hygiène and Demography, held in Brussels, September 2, and following days, 1903, in answer to the question—“Quelle est l'influence du travail dans les salles de filature de lin, sur la santé des ouvriers? Quelles sont les mesures à prendre, notamment au point de vue de la température et de l'état hygrométrique de l'air, pour améliorer les conditions du travail dans ces salles?”

before phthisis occurs. It is, however, right to remark that a very great improvement has taken place in the heckling and sorting departments of our mills, and as a result improved health of the workers. This is due to the excellent and unique system of ventilation invented by H.M. Inspector of Factories, Mr. Osborne, and which has now been in use for the past few years; in fact, I cannot speak too highly of the same.

The workers in our carding rooms are females, generally old or middle-aged. Some years ago, on entering the carding room, you would not be able to distinguish anyone for a few minutes, owing to the dust-laden atmosphere, and, when able to recognise the workers, you would see each attendant at a carding machine with her nose and mouth covered by a large "lap of tow," that acted as a respirator. At present, owing to the introduction of fans in carding rooms carrying away dust and other impurities, the atmosphere is much purer, and the "tow" respirator is not seen as frequently as in former years.

The hard-worked heckling machine boys, varying from twelve to sixteen years of age, do not suffer so much from difficulty of breathing, chiefly owing to their youth and vitality. They do not remain for very long at this occupation, as they generally go to other trades. You can generally, however, tell a "machine boy" by his stunted physique, and slightly rounded shoulders. I have known several of these boys leave the mills in spring time, obtain work in the brickfields so as to be in the open air, returning to employment in the mill during winter.

The children employed as "doffers" (French "démonteurs"), and also the young persons working in the spinning rooms, do not suffer from the inhalation of dust, but are exposed daily for several hours to heat and vapour, arising from the hot water through which the flax passes during the process of spinning. Their clothes are more or less damp, although at the present time the compulsory wearing of waterproof aprons from neck to knees is in force. These workers go barefooted owing to the floor of spinning room always having water lying upon same. Their leaving a hot, moist atmosphere, and emerging at once into a cold or frosty air, especially at night, frequently causes

bronchial attacks. This observation applies also to those who work in the weaving sheds. On arriving at their homes (the sanitary condition of many, however, is not good), the bedrooms are badly, or not at all, ventilated, and generally over-crowded. I have seen a small room, barely sufficient for one, occupied by four, two in each bed, whilst a sack filled with straw or chaff was pushed up the chimney to prevent ingress of air even the keyhole in the door was pasted over with paper.^a Three or four girls, unless living with their parents or relatives, generally club together, and occupy one room, which does for both sleeping and living in. They generally have use of the kitchen for cooking purposes. The reason of this is that the wages—twelve shillings or thereabouts—would not be sufficient to support one person in food, rent, and clothing. The food used is chiefly tea and ordinary bakers' bread for the three meals a day, with occasionally a little bacon, salt-fish, or an egg; also on rare occasions oatmeal porridge with butter-milk for supper. The hecklers and sorters, all adult males, consume a good deal of whisky, which, as a stimulant, relieves their breathing, but the habit often grows. During the daytime common black tobacco is "chewed" largely, and expectoration is frequent. Even the machine boys chew tobacco nearly all the time they are at work. The clothing of the young women is not near as warm as it should be in winter, hence we must look for other predisposing causes, as well as the occupation of the workers in causing phthisis.

The spinners, from long standing on a damp or wet tiled floor, are subject to varicose veins, constipation, and hæmorrhoids, whilst in a few cases I have noticed the fissured variety of eczema, or *eczema rimosum*, or "fendille," on palm of right hand, owing to the spinner wearing a leather cover or pad on that hand.

Of late years the factory authorities (and especially since

^aI can speak with experience on this matter, as when I began practice in Belfast in 1865 I was appointed medical attendant to workers in Watson, Valentine & Co.'s Factory, Ulster Weaving Factory, also Richardson Sons & Owden, and families of workers of Dunville & Co. This was before any "Truck Act," which has now done away with nearly all such attendance, as usually, a small sum was stopped from workers' wages. For several years I held these appointments.

a medical man, Dr. Whitelegge, C.B., has been appointed chief inspector)* have caused many well-needed improvements in hygiene and sanitation of our mills and factories. The problem that is gradually being solved is how to benefit the working classes, morally and physically, without putting any restrictions on the manufactures of the country. The certifying factory surgeon can now see how the employment is agreeing with a young person or child, say after some weeks' work in the mill, and can also certify for certain kinds of employment not injurious in the surgeon's opinion to the health of the worker. Our "doffers" ("démonteurs"), who remove the bobbins from the spinning frames, are often, on first entering a mill, attacked by "mill fever," ushered in by shivering, sickness, and pains over the body, likely due to the heat and smell of oil. These symptoms pass off in two or three days. The doffers, especially females, have often on the forehead and arms a peculiar, acneiform eruption, evidently a folliculitis, met with more frequently when Russian flax is being spun.

The ancient Irish used coarse homespun linen as a garment, dyed yellow, to kill, it was said, pediculi. This colour must have been obtained from the common whin blossoms, the *Ulex europæus*. The children in country places still dye their eggs at Easter with whin flowers boiled in water with the eggs.

The regimens of diet and clothing, compiled for use by those who, in olden times, would live long and see good days, affords a curious study. In one of these Sir John Harrington, in 1624, gives a "A dyet for the healthfull man," which commends for the summer time "garments of harts-skinnes and calves-skinnes, for the hart is a creature of long life, and resisteth poyson and serpents; therefore I myself use garments of a like sort for the winter season, also," he adds, "nevertheless lined with good linen." Lord Bacon had a firm trust in saffron-dyed linen or without, but says "pure fine linen, according to the advice of Hippocrates, should be worn in winter next the skin; in summer, coarser linen and oiled."

* The high scientific attainments and work of the Medical Inspector of Factories, T. M. Legge, Esq., M.A., M.D. Oxon., must not be passed over. Dr. Legge is justly popular with all the Certifying Factory Surgeons.

On whatever grounds, whether of sentiment or antiquity, whether of utility or convenience, as well as for durability and comparative cheapness, linen has no rival. Experts of more or less authority, generally less, have written about the evaporation and radiation of all fabrics, the conductivity, porosity, and hygroscopicity of tissues, sometimes giving a verdict in favour of linen, more often against it.

In the same way learned reasons can be given for wearing white clothes in summer, but nobody takes any notice of them. The immediate sensation of warmth, with ignorance of ultimate effects, has led to the wearing of woollens as underclothing in winter, and commercial advantage has been very skilfully taken of the situation, while linen has gone to the wall for want of push and assertion.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

AT a meeting of the College held on July 30, 1903, the following gentlemen, having passed the requisite examinations, were admitted Fellows of the College :—Neil Murphy Gavin, L.R.C.S.E., India ; James Campbell Nicholson, L.R.C.S.E., Bangor ; Elfred Chalmers Austin, M.R.C.S. Eng., London, W. ; Percival George Albert Bott, M.R.C.S. Eng., London, W. ; William Henry Eden Brand, L.R.C.S.E., Aberdour ; Edwin Harold Brown, L.R.C.S.E., Chesterton, Staffs. ; Edward Augustus Bullmore, M.R.C.S. Eng., London, W. ; C. William Darling, M.B., Ch.B., Edinburgh ; Francis Wilfrid Harlin, L.R.C.S.E., Edinburgh ; Frederick Burroughs Jefferiss, M.R.C.S. Eng., Chatham ; Cecil Ernest Jones-Phillipson, M.R.C.S. Eng., Port Alfred ; John Davis Lithgow, M.B., C.M., Edinburgh ; Thomas Hillhouse Livingstone, M.B., Ch.B., Stanhope, Durham ; Edward Elie Naggjar, M.R.C.S. Eng., Edinburgh ; Eugene Joseph O'Neill, M.R.C.S. Eng., New Zealand ; Hans Martinus Peries, L.R.C.S.E., Colombo ; James Martin Reid, M.B., Ch.B., Edinburgh ; Alexander Sharp, L.R.C.S.E., Boat of Garten ; Hubert Dunbar Shepherd, M.B., Ch.B., Westmoreland ; Thomas Scott Shepherd, M.B., M.R.C.S. Eng., Lancaster ; George Freeland Barbour Simpson, M.B., Ch.B., Edinburgh ; Henry Wade, M.B., Ch.B., Edinburgh ; and Arthur Whittome, M.B., Ch.B., Edinburgh.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

WORKS FOR MEDICAL STUDENTS.

1. *A Handbook of the Diseases of the Eye and their Treatment.* By HENRY R. SWANZY, F.R.C.S.I. Eighth Edition, with Illustrations. London: H. K. Lewis. 1903. 8vo. Pp. 678.

WE heartily welcome the eighth edition of this most excellent handbook, which has again been carefully revised and brought up to date. As on several previous occasions we have commented, more or less extensively, upon the merits of this book in detail, we need not now repeat our opinion that it is one of the best, if not the very best, of its kind published in any language.

"The following," the author says in his preface, "are some of the additions made in this issue:—In Chap. IV.—A Description of Conjunctivitis Petrificans; in Chap. VI.—A Description of Grating-like Keratitis, Guttate Keratitis, Keratitis Aspergillina, Recurrent Abrasion of the Cornea, and of Injuries of the Cornea caused by Blows and Burns; in Chap. VII.—A More Detailed Account of Herpes Zoster Ophthalmicus, a Description of Lymphangioides of the Eyelids, and of Pflüger's Method of Tarsoraphy; in Chap. VIII.—A More Detailed Account of Kuhnt's Method of Extirpation of the Lacrimal Sac; in Chap. X.—In view of the vast importance of the subject, a More Detailed Account of Lymphatic Ophthalmitis; in Chap. XIV.—A More Detailed Account of the Use of the Magnet for Foreign Bodies in the Eye; in Chap. XVI.—A More Detailed Account of Tumours of the Optic Nerve; in Chap. XVII.—A Description of the Eye Symptoms attendant upon Myasthenia Gravis; in Chap. XVIII.—A Description of Mr. P. W. Maxwell's Operation for Shrunken Socket, and of Professor Krönlein's Temporary Resection of the Outer Wall of the Orbit for Orbital Tumours, &c.; in Chap. XIX.—A Description of Amaurotic Family Idiocy."

We can, without hesitation, commend this book to all who require a thoroughly reliable text-book which, without being too large, is still full enough to make the matter under discussion clear to the student. It is written in a style which leaves little to be desired, and in English which it is a pleasure to read after the crude and illiterate productions so often given to the world under the name of *Students' Handbooks*.

2. *Manual of Practical Anatomy*. By D. J. CUNNINGHAM, M.D. (Edin. et Dubl.), D.Sc., LL.D., D.C.L. (Oxon.), F.R.S.; Professor of Anatomy in the University of Edinburgh. Volume Second. Thorax; Head and Neck. Third Edition. Illustrated with 225 Engravings, many in Colours. Edinburgh and London: Young J. Pentland. 1903. Cr. 8vo. Pp. xvii. and 607.

So recently as June we reviewed the first volume of the third edition of this popular and standard text-book on human anatomy. With singular appropriateness, the second volume appears on the eve of another "*Annus Medicus*" in the Schools. The contents of this volume are the Thorax and its Contained Viscera and Structures, the Head and Neck (using the terms in their fullest anatomical sense to include the dissection of the orbit, mouth and pharynx, larynx and tongue), the Brain, Auditory Apparatus, and Eyeball.

The letter-press is neat and clear, and the illustrations are numerous as well as instructive.

The second volume completes the work, which will doubtless run rapidly through its third edition. With great confidence we recommend "*Cunningham's Manual of Practical Anatomy*" to all medical students commencing or pursuing their anatomical studies.

Radium and other Radio-Active Substances; Polonium, Actinium, and Thorium. By WILLIAM J. HAMMER, Consulting Electrical Engineer. London: Sampson Low, Marston & Co. 1903. Pp. 72.

ALTHOUGH not written by a member of the medical profession, this little work will well repay a careful study. It

deals with a subject of surpassing interest to all men of science—namely, radio-activity. But it also gives a very clear account of the treatment of disease by the ultra-violet light, with which the name of Dr. Neils R. Finsen, of Copenhagen, is so intimately connected.

Two introductory sections are devoted to a consideration of the phenomena known as fluorescence and phosphorescence. The author reminds us that Sir George Stokes has given the name of “fluorescence” to the phenomenon which certain substances present in altering the very short waves of ultra-violet light, which are invisible, and transforming them into waves of longer length, so that they become visible to our eyes. In electrical language a fluorescent substance might be termed a “step-down transformer,” or perhaps more correctly a frequency-changer for light waves. The phenomenon of fluorescence was known to Brewster in 1833, and to Herschel in 1848, but it was first explained by Stokes in 1852, who gave it the name from flourspar, which possesses the property. In the case of fluorescence the emission of light lasts only so long as the substance is stimulated by the incident beam. But in phosphorescence emission of light continues or persists after the stimulation has ceased or the original source of light has been removed. Mr. Hammer illustrates this part of his subject by a description of a long series of experiments.

In 1896 M. Henri Becquerel, Member of the Institute of France, discovered that double sulphate of uranium and potassium, and double sulphate of uranium and ammonium, gave off remarkable radiations of light which have since borne the name of “Becquerel Rays.” Uranium was itself discovered in 1789 by the German chemist Klaproth, who named the metal after the planet Uranus. Uranium, although widely distributed, is never found in large quantities. It forms several minerals, of which the commonest is “uranite,” commonly known as “pitchblende”—a compound oxide containing 81·5 per cent. of uranium, 4 per cent. of lead, and ·5 per cent. of iron with oxygen and water. It is found in Bohemia, Saxony, and Cornwall, in Europe; and in Colorado in the United States. The pitchblende so far ascertained to be richest in the radio-active materials is that obtained in Bohemia. These materials were dis-

covered by Professor Pierre Curie and Madame Sklodowska Curie in their investigations on the Becquerel radiations from uranium. They are polonium, radium, and actinium. The radio-activity of polonium is 300 times as great as that of the uranium salts experimented on by Becquerel. That of chloride of radium may be 7,000 times as great.

The extraordinary substance called "radium" is as costly as it is wonderful. It may interest our readers to learn that the "Société Centrale des Produits Chimiques de Paris" will shortly put upon the market a preparation of radium, chemically pure or nearly so, at a cost of 30,000 francs (about £1,200) per gramme, or about £544,312 (more than half a million of money) per pound. It takes 5,000 tons of uranium residues to produce a kilo (2·2 pounds) of radium, and the cost of handling these residues is about £100 a ton. Professor Curie told Mr. Hammer that he would not care to trust himself in a room with a kilo of pure radium, as it would burn all the skin off his body, destroy his eyesight, and probably kill him. Mr. Hammer himself felt the effects for weeks of a slight burn caused by inadvertently carrying a wooden box containing eight tiny sealed glass tubes of radium under his arm for several hours. Such tubes placed in contact with the back of the necks of guinea-pigs have paralysed or killed these animals in a few hours, according to the length of exposure to its fatal radiations. Professor Curie took a ring containing a small diamond into his dark room and held near it a small pill-box containing about a gramme of radium, so causing the diamond to phosphoresce most beautifully. It was as if a lighted candle was causing it to flash. This showed that the stone was a genuine diamond.

Having discussed radium in the most interesting manner, Mr. Hammer proceeds to describe the properties and applications of selenium. This substance, discovered by the Swedish scientist, Berzelius, in 1817, is a by-product from the distillation of sulphuric acid from iron pyrites. It possesses the extraordinary property of varying its electrical resistance on exposure to light, and Mr. Hammer points out the commercial applications of this peculiarity which are at present under consideration. Two useful applications may be cited in illustration.

Some twenty years ago Mr. Alexander Graham Bell made some interesting experiments with his "radiophone," an instrument in which a mica or glass diaphragm covered with a silvered foil was used to reflect a powerful beam of light upon a selenium cell placed in the focus of a silvered reflector. To the selenium cell was connected a pair of telephones and a battery. At the back of the silvered diaphragm were a flexible tube and mouth-piece into which words were spoken. The sound waves causing the diaphragm to vibrate sent pulsations of the reflected light upon the selenium cell, producing corresponding variations in its resistance, and reproducing audible sounds in the telephone.

The most successful and most extensive experiments which have been made with this "speaking arc" are those of Ernst Ruhmer, of Berlin, who has employed it in conjunction with his selenium cells for wireless telephony and with remarkable results. By means of his apparatus Ruhmer has succeeded in transmitting speech over a beam of light $4\frac{1}{4}$ miles in length—nay more, he has recently (1903) written to Mr. Hammer that he has succeeded in talking over a beam of light a distance of more than 10 miles.

Another important commercial application of the selenium cell has lately been made by Ernst Ruhmer in connection with Pintsch's compressed gas buoys. It had hitherto been necessary to burn the lights in these gas buoys day and night, it being impossible to switch off the gas. Ruhmer placed one of his selenium cells in the top of such a buoy connected with a switching device. As soon as the sun rises in the morning the resistance of the selenium cell is reduced. This causes the switching device to turn off the gas, which is again turned on when the resistance of the selenium cell is increased by the approach of nightfall, or in the event of a storm. A buoy containing sufficient gas for one month can thus be made to work without re-charge for from three to five months.

Selenium is found in Vesuvian lava, and in natural sulphur as a sulphur selenide in the Lipari Islands. It is also found in Norway. It occurs in meteoric iron and in certain rare metals, such as encarite, crooksite, claustralite, riolite, lehrbachite, and zorgite.

Mr. Hammer's work concludes with an account of the treatment of disease by ultra-violet light-rays, as inaugurated by Dr. Niels R. Finsen, of Copenhagen, and carried out since 1896 in the Finsen Light Institute at Rosenvaengat, a suburb of the Danish capital. The description of the ultra-violet rays treatment of lupus is well illustrated. In it the author falls into a chronological error in referring to John of Gaddesden as a Court physician in Queen Elizabeth's reign. He flourished in the reign of Edward III., and, like his patient, was long since dust and ashes in the days of "Good Queen Bess."

In a quasi apology for introducing a purely medical subject into his paper, Mr. Hammer naively remarks that "Electrical engineers should feel a sense of pride that in the use of the arc light in this remarkable advance in medicine and surgery, their profession has contributed in no small degree." We agree with him, and hope that his most instructive pamphlet will be widely read by members of the medical profession.

RECENT WORKS ON ELECTRO-THERAPEUTICS.

1. *High-frequency Currents in the Treatment of some Diseases.* By C. WILLIAMS, F.R.C.S.E. London: Rebinan. 1903.
2. *Polyphase Currents in Electrotherapy.* By G. HERSCHELL, M.D. London: H. J. Glaisher. 1903.

1. WITHIN the last few years there has come into use a novel departure in electro-therapeutics based upon the employment of electrical currents of great frequency and high potential. These currents have been investigated physiologically by d'Arsonval and others. The extraordinary thing about them is this, that when the frequency of oscillation attains a very high value—500,000–1,000,000 a second and upwards—the physiological action becomes modified in a very surprising and unexpected way. These currents have no action on the motor or sensory nerves, and the patient is scarcely, if at all, conscious of their passage through the body.

In the volume under review Dr. Williams essays to give a short but concise account of the methods of use and the action of these currents, mainly derived from his own experience.

The alternations of an ordinary Rhumkorff coil are about 200 per second, and the E.M.F. varies from 10,000 to 200,000 volts, while the alternations of the H.F. currents may be millions per second, and the E.M.F. from 100,000 to 1,000,000 volts.

The subject is doubtless a difficult one to explain popularly, and we cannot altogether congratulate Dr. Williams upon his exposition of it, while the physiological account appears to us weak and unsatisfactory. The concluding chapters of the book discuss the application of H.F. currents to the treatment of some general and local diseases. The list is somewhat heterogeneous, and some of the results claimed are almost too roseate to be true. The method has been applied to cases of diabetes, gout, chronic rheumatism, obesity, hysteria, anæmia and chlorosis, neurasthenia, pulmonary tuberculosis, dyspepsia, atonic dilatation of stomach, colitis, &c. Of skin diseases, observations have been made on lupus (*vulgaris* and *erythematosus*), chronic eczema, acne rosacea, psoriasis, rodent ulcer, malignant growths, &c.

2. Dr. Herschell is of opinion that polyphase electric currents, although well known industrially, have suffered unmerited neglect in the domain of electro-therapeutics. He takes credit to himself as being the first medical man in England to study their action in the treatment of disease, and in the spring of this year he read a paper on the subject before the British Electro-therapeutic Society; and he now republishes his paper in the hope that it may help others who are disposed to work in this field.

A polyphase system is any arrangement of conductors, carrying two or more currents, which are definitely related to one another in point of time, so that one is a little ahead of the other—*i.e.*, the wave-curves differ in phase. In the ordinary single-phase alternating current there is a range of 180° in the curve of E.M.F., starting from zero, and passing through a maximum to zero again. In a two-phase alternating current the ebb and flow of E.M.F. occur at distances 90° apart; and in tri-phase currents the E.M.F. in each of the three conductors must reach its maximum 120° apart, so that the algebraic sum of the three currents in the system will be zero at any particular moment.

A tri-phase current is analogous to a 3-crank engine, with the cranks set at 120° apart (S. Thompson).

The physiological effects claimed for such currents are—
(a) increase in tension and amplitude of the pulse tracing;
(b) increase in the excretion of urea; (c) stimulating action upon the motility of the gastro-intestinal tract.

After describing the technique for the practical use of tri-phase currents, Dr. Herschell gives some illustrations of their application in the treatment of special affections. The motley list of those which are specified is more curious than convincing—*e.g.*, neurasthenia, loss of memory, morbid fears, headache, nervous indigestion, neuroses of sensation, muscular atony of stomach, and constipation.

Journal of the Royal Army Medical Corps. Edited by
MAJOR R. H. FIRTH, R.A.M.C. Issued monthly. Vol. I.
No. 1. July, 1903. London: John Bale, Sons and
Danielsson, Ltd. 8vo. Pp. 82.

WE welcome with pleasure the appearance of the *Journal of the Royal Army Medical Corps*. It will undoubtedly supply a want which has for many years been felt by the officers of the corps and the profession. Although late in the day in making its *début*, the Journal is inaugurated at a propitious and appropriate time—at a time when the Army Medical Service offers attractions which no recently qualified medical man need despise. During the past few years men have been slow to offer themselves as intending competitors for a service which has been the subject of much controversy and adverse criticism. That the Royal Army Medical Corps is now becoming more deservedly popular is indicated by the increased competition for admission to it and by the fact that many of the candidates are highly qualified. The general arrangement of the Journal is good, and the articles in the first issue testify that there is ample material to work on and ability to use it. There is an introduction by the Director-General which should stimulate officers of all ranks in the corps to take advantage of the opportunities such a publication affords of bringing to light much useful and in-

teresting information. An exhaustive and painstaking report on hospital arrangements on board transports, illustrated by photographs and diagrams, by Captain G. P. Stanistreet, shows that the writer is thoroughly conversant with his subject, and contains observations and suggestions of value. Lieut. W. C. Stevenson contributes an account of a case of neurectomy of the sciatic nerve, and Major M. T. Yarr gives notes on "Some Rare Ocular Manifestations of Venereal Disease." Major J. Wills' "Report on the Medical Relief Expeditions to Martinique and St. Vincent in Aid of the Sufferers from the Volcanic Eruption of May, 1902," is a well-written descriptive account of the disaster and of the arduous labours undertaken by the relief party to alleviate the sufferings of the survivors. The editorial, entitled "The Enteric Fever Problem," is an instructive summary of modern ideas as to the nature and ætiology of the disease. It embraces the conclusions arrived at by Majors Firth and Horrocks as regards the possible influence of soil, flies, and fabrics in the dissemination of enteric infection, and points out the necessity of a "thorough organisation of a sanitary service in times of peace to meet the needs of war." Extracts from military, medical, and other journals, official information, and corps news fill up the remaining pages of the Journal. It has been prosperously launched, and we wish it all success.

Transactions of the Association of American Physicians.
Vol. XVII. Philadelphia. 1902. Pp. 667.

IN this valuable and scientific volume there are several important papers. We find papers on the chemistry of bacterial cells, on the acid-resisting group of bacteria, on the bacteriology of empyema, on the pathology of pernicious anæmia, on the healing of ulcerative endocarditis, and on other important subjects. The great majority of the articles are not merely reports of cases, but are the outcome of good, original work.

The Association may well be proud of its "Transactions."

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.^a

By SIR CHARLES A. CAMERON, C.B., M.D.; D.P.H., Camb.; M. and Hon. F.R.C.P.I.; F.R.C.S.I.; F.I.C.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; Vice-President and Ex-President of the Royal Institute of Public Health, and of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, and Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee, &c.

(Continued from page 227.)

TREATMENT OF THE CASES IN HOSPITAL.

ALL the cases of small-pox known to exist were treated in hospital with the exception of one patient, a respectable person, who refused to leave her house.

The Public Health Committee made for several years attempts to get a special hospital for small-pox established, but until the present year without success. On two occasions eligible sites which they had agreed with the owners to acquire for a small-pox hospital had to be abandoned owing to the opposition of residents in the localities.

Feeling almost certain that small-pox would break out in Dublin before long, I addressed the following letter to the Lord Mayor:—

^a The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

"PUBLIC HEALTH COMMITTEE,

"DUBLIN, *December 24th*, 1902.

"DEAR LORD MAYOR,

"I regret to have to inform your Lordship that another case of small-pox—an importation from Liverpool—has occurred in Dublin. The patient could not be admitted into Cork-street Hospital, as the wards in that Institution are fully occupied with measles, scarlatina and enteric fever cases. The authorities of the Hardwicke Hospital have consented to take the patient (a sailor), and he is now in the hospital in a large ward occupied only by himself. This hospital is in a congested district, and in the immediate vicinity of several large public institutions. It is a lamentable thing that there is no Small-pox Hospital provided for Dublin. This Committee have done their best to secure one, but I regret to say that their efforts have not been sufficiently seconded by the Council at large.

"I am,

"Dear Lord Mayor,

"Faithfully yours,

"CHARLES A. CAMERON."

The letter having been read to the Municipal Council the following resolution was adopted:—

"That the letter of Sir Charles Cameron be referred to the Public Health Committee; and, that the Committee be directed to secure and equip, without delay, an isolation hospital, the full cost not to exceed £3,000."

THE ISOLATION HOSPITAL.

The Corporation had acquired, for the purpose of the Main Drainage of the City, the Pigeon House Fort and some buildings near to it, which had been used by the Royal Engineers for submarine mining purposes. I had suggested several years ago that those buildings would suit admirably as an isolation hospital. They were occupied to some extent by materials that were being used in connection with the work of converting the Pigeon House into an electric power station and place for treatment of sewage.

After a considerable amount of negotiation with Committees of the Corporation interested in the Pigeon House the Submarine Station came into the possession of the Public



Isolation Hospital, "Pigeon" House road.

Health Committee. An application to the Local Government Board for a loan of £3,000 for the adaptation of the building for hospital purposes and the erection of additional buildings was successful.

A contract was made with Messrs M'Manus & Co., London, to erect within a period of 21 days a building of wood and iron to accommodate 50 patients, for the sum of £939. The contract was duly carried out. The building erected included two large wards—the one to accommodate 30 male patients, and the other to accommodate 20 female patients—physician's room, nurses' rooms, store room for linen, a kitchen with cooking apparatus, and hot water circulating boiler, the requisite number of bath rooms, lavatories, water-closets, fittings, &c.

The hospital is a substantial, permanent structure, and is a valuable acquisition to the Public Health Department.

I considered that it would be more economical to make an arrangement with the Committee of Cork-street Hospital to administer the small-pox hospital than to equip it with a special staff. The Cork-street Institution was provided with physicians and nurses who had experience of the treatment of small-pox, and who were at once available. When the epidemic ceased the staff could be withdrawn, and the hospital closed, and no officials would remain on the hands of the Public Health Committee.

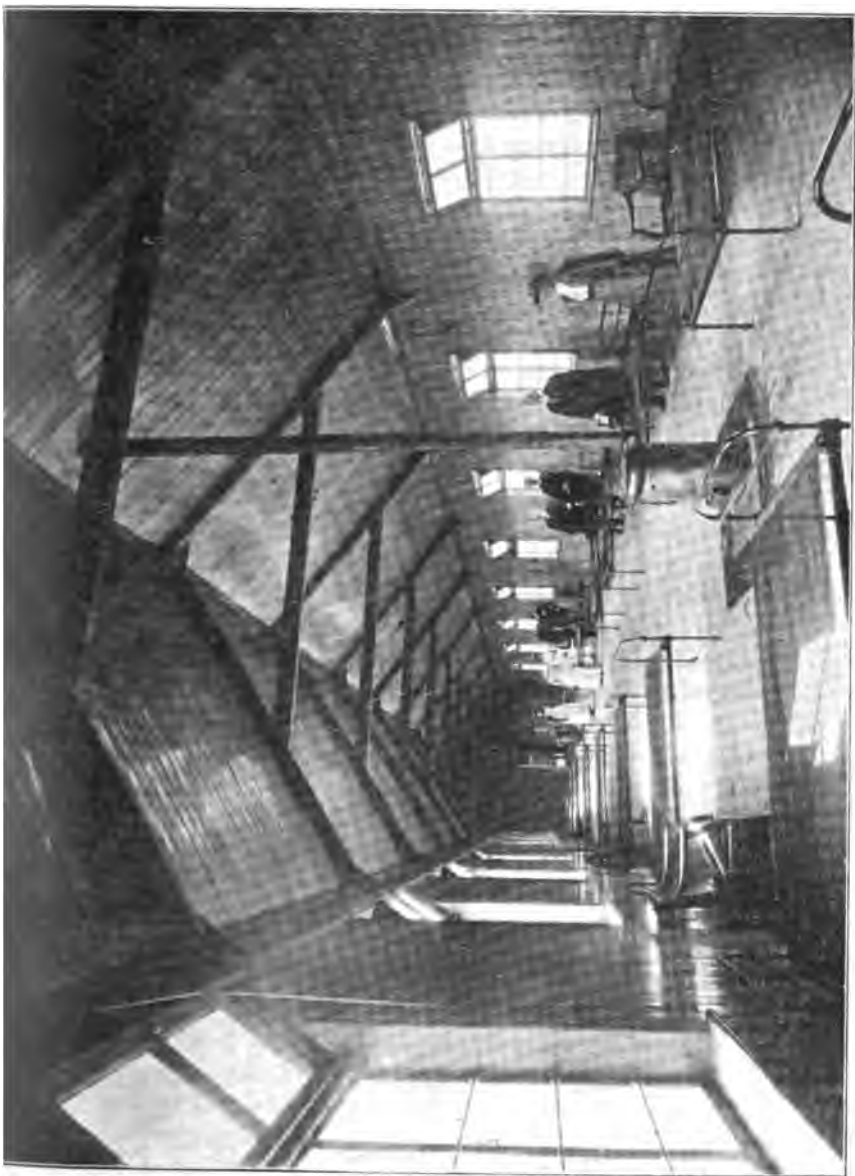
By this agreement the Committee of Cork-street Hospital undertook to supply medical and nursing staffs on the following terms :—

Medical Attendance	£5	5	0	per week
Staff Nurse	2	2	0	..
Other Nurses	1	1	0	..
Wardmaids	0	7	0	..
Cook	0	10	0	..

The nurses and wardmaids to receive rations.

A porter already in charge of the buildings was retained.

The Pigeon House Isolation Hospital received its first patient on March 4th, 1903. The Visiting Physician was Dr. Day, Resident Physician of Cork-street Hospital, who had great experience in the diagnosis and treatment of small-pox. The Resident Physician was Dr. J. M. S. Lewis, who had been



Male Ward, Isolation Hospital.

an assistant in Cork-street Hospital. The Staff Nurse in charge was Miss O'Brien.

The Lady Superintendent of Cork-street Hospital, Miss Ray, supplied the bedding, &c. The furniture necessary for the Resident Physician and for the kitchen and other apartments I purchased at Messrs. Pim Bros., South Great George's-street.

The first 11 cases in the recent epidemic were received at my request into the Hardwicke Fever Hospital. They were placed in a very large ward, the most isolated in the Hospital. Dr. F. J. Moore, Resident Physician, re-vaccinated all the patients who, suffering from various infectious diseases, were already in the hospital.

All the subsequent cases were, with one exception, treated in the Corporation Hospital.

The Convalescent Home, Beneavin.—Acting on my suggestion the Public Health Committee had in 1902 made an agreement with the Committee of Cork-street Hospital, by which Beneavin Convalescent Home, Finglas, would, if required, be converted into a small-pox hospital. The terms were a retaining fee of £50 for a period of six months and 4s. per patient per day, or 3s. if the number exceeded 10. As the Trustees of Beneavin Convalescent Home objected to that institution being used for other than convalescents, the Committee of Cork-street Hospital were unable to use it as a small-pox hospital after the expiration of the six months. It, however, proved very useful in 1902, as cases that occurred in Dublin in that year were promptly removed to it.

Early in February, 1903, a fresh agreement was entered into between the Corporation and the Committee of Cork-street Hospital for the use of Beneavin Convalescent Home for small-pox convalescents. The following are the provisions of the agreement, stripped of technical law terms :—The Committee of the Home undertake to maintain the convalescents until they were fit to be discharged. The convalescents are to be removed from the Small-pox Hospital to Beneavin upon the written orders of persons authorised by the Committee to do so, and the convalescents shall be under the exclusive control of the Committee's officers. The Corporation to pay to the

Committee in the case of there being at any time seven or less number of convalescents in the Home the sum of £10 per week for all, and should there be 8, 9, or 10, then 4s. a day for each. Should the number be 11 or more, then the daily charge to be 3s. per convalescent.

The Committee to provide everything required by the convalescents. The Committee reserve the right to send small-pox convalescents from Cork-street Hospital to Beneavin at the Committee's expense. Should additional accommodation be required at Beneavin it is to be provided by the Corporation.

The Corporation agree to receive into their Small-pox Hospital patients sent from Cork-street Hospital and the North and South Dublin Rural Districts, the Committee agreeing not to receive small-pox cases from any district whatever without the permission of the Medical Superintendent Officer of Health.

The agreement to terminate without notice by either party when no convalescent from the Small-pox Hospital remains at Beneavin. The Corporation shall then pay all necessary expenses incurred in the disinfection, painting, re-papering, &c., of the Home, and for the destruction of infected articles.

The Committee and their officers are to be held immune from actions at law arising out of removal of patients to and from Beneavin.

MEANS ADOPTED TO CHECK THE SPREAD OF THE DISEASE.

The five agencies employed to check the spread of the disease were—(1) prompt removal of patients to hospital, (2) prompt removal of "contacts" to the Refuge, (3) vaccination and re-vaccination, (4) a thorough search for concealed cases of small-pox, and (5) thorough disinfection of infected dwellings, destruction of the clothing, &c., of the patients, and disinfection of clothing, &c., of the "contacts."

I have not the least doubt that the existence of the Corporation Refuge in Nicholas-street prevented the disease from becoming as widespread and extensive as on the former occasions when it was epidemic in Dublin. Several years ago, at my request, a house belonging to the Corporation in Nicholas-street, and long unlet, was converted into a "Refuge"

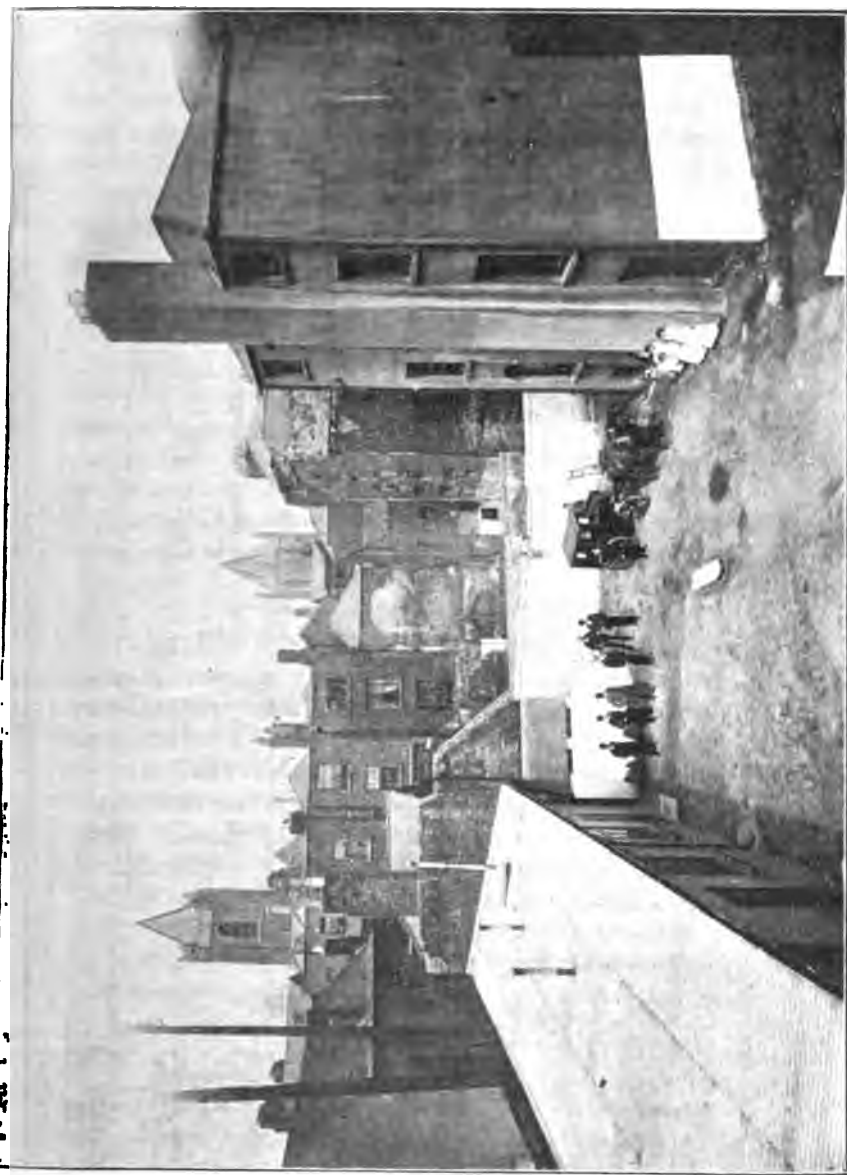
or temporary home for persons whose dwellings were undergoing disinfection. Ruinous houses, one on each side, were taken down, so that the Refuge was isolated from other dwellings. At its rear there is a large open space, from which the house is entered. "Contacts" were brought into this open space through a gateway.

At the beginning of the epidemic there was accommodation for 30 persons in the Refuge, but by a little overcrowding the number could be increased to 40. In March I suggested that the accommodation should be increased by putting up a wooden building, comprising 4 large rooms, in the open space at the rear of the Refuge. The Public Health Committee acceded to the request, and Mr. McCarthy, City Architect, had the building completed by the end of March. The beds then numbered 48, and as young children slept with their mothers sleeping accommodation for about 60 persons was now available. A new lavatory and baths were added to those already in existence.

On the notification or discovery of a case of small-pox all the persons in the house infected were promptly brought to the Refuge. Whilst there their clothes were disinfected, and they got warm baths. They were well fed. Although they could not be legally brought to the Refuge or detained there, unless with their consent, the "contacts" never made any objection; probably they were under the impression that they could be compelled to go into it.

In the earlier cases all the "contacts" were detained until the period of possible incubation of the disease had passed. When the cases became numerous this course was found impracticable, but the persons who were in actual contact with the patients were detained the full time. Throughout the epidemic all the persons who had resided in houses in which cases occurred were kept in the Refuge until the whole of the infected houses were disinfected, limewashed, and cleansed.

The disinfectants employed were solution of corrosive sublimate, 0.2 per cent. in strength, and formalin gas, or solution of formalin used as spray. Immediately after disinfection the walls and ceilings were whitewashed, and the floors and woodwork washed, carbolic acid being used in the cleansing process.



The "Refuge," Nicholas-street.

In order to hasten the disinfection process, work was carried on after official hours, and frequently all night and on Sundays. The disinfection apparatus was in operation day and night and on Sundays during the height of the epidemic.

Owing to the difficulty of getting vehicles to convey the "contacts" to the Refuge, the Public Health Committee purchased an omnibus capable of holding 12 persons, and drawn by two horses. Four horses were purchased, as the work of bringing articles for disinfection and returning them to their owners had enormously increased, and a large number of vans had to be employed for the purpose.

The total number of persons lodged in the Refuge during the epidemic was 1,402.

Not a single case of small-pox occurred in the street in which the Refuge is situated, except in the Refuge itself, the cases there being "contacts" who had been taken into it.

The managers of the primary schools were informed of the cases of small-pox so as to prevent children going to the schools out of infected houses.

VACCINATION AND RE-VACCINATION.

In every case of small-pox every effort was made to induce the "contacts" to allow themselves to be re-vaccinated. With very few exceptions the re-vaccinations were effected, and contributed largely to stay the progress of the epidemic. After a while the Local Government Board permitted payment to be made by the Boards of Guardians for vaccinations and re-vaccinations made in places outside the dispensaries. Many thousands of persons were re-vaccinated. The following was extensively distributed as leaflet and poster :—

SMALL-POX OUTBREAK.

PUBLIC HEALTH COMMITTEE.

It is urgently requested that every person should get re-vaccinated as a protection against small-pox, which is now prevalent.

Re-vaccination is performed free of cost at the Dispensaries, Lisburn-street, Benburb-street, Summerhill, and North Clarence-street, from 10 to 12 every morning.

(Vaccinations at Summerhill Dispensary from 8 to 9 o'clock, p.m., also).

Persons who have been recently vaccinated rarely catch small-pox, and when they do the disease is of a very light form. All the really dangerous cases occur only in persons who have not been vaccinated.

Vomiting, pains in the back, and headache, are symptoms of small-pox.

Persons who feel unwell, and have a rash upon their skin, should not present themselves at any dispensary or hospital, but should at once send for a doctor.

No person should unnecessarily enter a room where small-pox has occurred till the patient has been removed, and the room and its contents have been disinfected.

All clothing that has come into contact with cases of infectious disease is dangerous.

Persons who have come into contact with a small-pox case should immediately proceed to the Refuge, 7 Nicholas-street, where their clothing will be disinfected.

Persons who conceal small-pox will be prosecuted.

Should any person become aware of a case of small-pox he should promptly notify it to the Public Health Office, Cork-hill, Telephone No. 200.

CHARLES A. CAMERON,

Medical Superintendent Officer of Health.

Public Health Office,

17 Castle-street, Dublin, *March*, 1903.

CONCEALING CASES AND PAWNING INFECTED CLOTHING.

In many instances the disease was spread by the concealment of cases and by pawning infected clothing. In two instances cases of small-pox in pawnbrokers' assistants were clearly traced to their having handled clothes tendered for pawn which had been worn by infected persons.

As regards concealing cases, nearly all the members of one family residing in Rotunda Markets were discovered to be ill from small-pox; one of them was convalescent. During the time of the concealment the affected persons must have communicated the disease to other people, as they lived in a densely populated locality.

Extensive searches were made in the infected area by the inquiry officers and sanitary sub-officers, which resulted in the detection of several concealed cases of the disease.

Prosecutions for not notifying cases of small-pox.

James Tolan, 4 St. Thomas-avenue. Fined £2.

Mary Gibbons, 13 Little Britain-street. Fined 10s. (She had concealed cases of small-pox for six weeks.)

Thomas Gibbons, 13 Little Britain-street. Fined £2.

Mary Cullen, 10 Great Britain-street. Fined £1.

Thomas Lyttleton, Hardwicke-street. Fined £1.

Fanny Rice, Hardwicke-street. Fined £1.

Ellen Connor, 26 Smithfield. Cautioned.

Patrick Mooney, junior, 36 Church-street. Fined £1.

For exposing themselves and infected clothing in public.

Ellen Connor, 26 Smithfield. Fined £1.

Patrick Mooney, junior, 36 Church-street. Fined £2.

For pawning infected clothing.

Esther Ryan, 3 North Anne-street. Fined £2.

The following persons were summoned to appear before the Police Magistrates on the 4th of September, 1903 :—

Margaret Kelly, for concealing a case and pawning infected clothing, 13 New Bride-street.

Anne Healy, for concealing, 9 Wellington-street.

Michael Bird	do.	do.
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Patrick Donohoe	do.	do.
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William Kearns	do.	do.
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Daniel Clarke	do.	do.
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Michael M'Caigne	do.	do.
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Mary Anne Miley,	do.	8 Whitefriar-street.
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Elizabeth Coleman	do.	29 Upper Dorset-street.
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CASES OF SMALL-POX IN DISTRICTS OUTSIDE THE CITY.

When small-pox had been for more than a month established in the city a case of the disease occurred in Blackrock Township, and later was followed by two others. Subsequently four cases occurred in Pembroke Township and three in Rathmines Township. In Kingstown Township there followed what may be regarded as an epidemic of the disease. There were 19 cases up to the week ended August 1st, exclusive of a case admitted into Steevens' Hospital.

Four cases occurred in the South Dublin Rural District, two in the North Dublin Rural District, and one in Rathdown Union District.

The total cases outside the city up to the end of July was 35. I have no doubt that all these cases were directly or indirectly due to cases in the city. Adding these to the city cases the total number up to the end of July was 196.

PREVIOUS EPIDEMICS IN DUBLIN.

In the epidemic of small-pox in 1877-1881, the deaths registered as due to that disease numbered 1,405. There were no notifications of infective diseases at that time, but as the case mortality was about 10 per cent. at least, 14,000 cases of the disease must have occurred in the Dublin Registration Area.

The next epidemic was in 1894-1896. During this epidemic 181 deaths from it were registered for the city districts, and 19 for suburban districts, total, 200. In the city 1,492 cases of the disease were notified; 1,611 cases were treated in hospital. Many persons of good social position were attacked by the disease. This was not the case in the recent epidemic, which was practically confined to the streets occupied by the poorer classes. In the last epidemic 24 cases occurred in the squalid Church-street, and 11 in North Anne-street, another purlieu.

EFFICACY OF VACCINATION.

There were 243 patients treated in the Corporation Small-pox Hospital. Of these 67 had never been vaccinated; 21 of the unvaccinated patients died.

There were 176 patients who had been vaccinated; of these 12 died.

Seven patients had been re-vaccinated before the epidemic. None of them died.

Eleven patients had been re-vaccinated after exposure to the infection of small-pox. None of them died.

The 33 deaths that occurred in the hospital could not be considered as all due to small-pox. One was that of a baby two hours old; another was a case of septicaemia in a woman who had a miscarriage, and at the time was convalescent.

The third was that of a man who died from phthisis during convalescence from small-pox.

Eleven patients were treated in the Hardwicke Hospital; 6 had never been vaccinated, and one of these died. None of the 5 vaccinated patients died.

The Sanitary Sub-Officers were employed from May 7th, 1903, till May 26th, in searching for unvaccinated persons, with the following results :—

	Houses Visited	Rooms Visited	Persons not Re-vaccinated reported to the Medical Officers	Persons never Vaccinated reported to Medical Officer of Health
North City -	4,038	16,679	17,280	403
South City -	1,392	5,018	4,933	81
Total -	5,430	21,697	22,213	484

It is worth noting that vaccination seems to have been better enforced in South Dublin than in North Dublin. Population of South Dublin, 142,639; population of North Dublin, 150,746—293,385.

APPROXIMATE COST OF THE EPIDEMIC.

Disinfecting Department.

Overtime allowance to staff	£244 15 10
Wages paid to extra employees, disinfectors, drivers, limewashers, laundresses, &c.	271 0 6
Extra stabling, forage, and hire of horses ..	102 1 3
Horses purchased	80 0 0
Omnibus purchased	30 9 0
Car purchased	22 0 0
Harness	25 6 0
Estimated cost of extra fuel and gas	12 3 0
Extra disinfectants	65 1 4
Extra overalls for men	9 0 0
	<hr/>
	£861 16 11

The Refuge.

Extra employees, cost of their maintenance and that of "contacts"	£382	14	10
New buildings, baths, lavatories, &c.	302	0	0
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	£684	14	10
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General Expenses, Destruction of Infected Clothing, &c.

Total of sums paid to compensate the owners of infected clothing, bedding, books, &c.	£189	2	8
New mattresses, &c., supplied for those destroyed..	114	19	0
Printing and circulating of posters, leaflets, &c. ..	17	10	6
Estimated cost of printing Report on Epidemic ..	25	0	0
Dr. Benson for Public Health services in vaccinating "contacts," &c.	3	18	0
Dr. Moore do. do. do.	10	0	0
	<hr/>		
	£360	10	2
	<hr/>		

Hardwicke Hospital.

Maintenance of patients up to March	£70	0	0
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Isolation Hospital.

Adapting existing buildings to hospital purposes ..	£664	0	0
Work at Pigeon House, compensating for loss of a house at hospital	66	19	0
Water supply	109	15	7
New buildings	959	5	0
Drainage works, levelling ground, &c.	434	15	7
Furniture and bedding, &c., supplied from Cork-street Hospital	398	14	4
Furniture, &c., supplied otherwise	56	6	5
Disinfecting apparatus	121	10	0
Maintenance of nurses, patients, &c.	342	5	2
Medical attendance	297	0	0
Furniture, &c., for physician's house, nurses' apartments, &c.	101	7	6
	<hr/>		
	£3,551	18	7
	<hr/>		

Beneavin Convalescent Home.

Cost of patients up to 31st July, 1903	£639	3	0
Estimated cost of disinfecting, repainting, &c. ..	50	0	0
Estimated cost of 10 convalescents still at Beneavin ^a ..	30	0	0
	<hr/>		
	£719	3	0
	<hr/>		
Unascertained liabilities	£100	0	0
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Grand Total ..	£6,348	3	6
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ASSETS.

The estimated cost of the epidemic is, approximately, £6,348 3s. 6d. It must, however, be noted that valuable assets remain, of which the horses and outside car are being disposed of. The following, which are in the nature of assets, cost :—

Omnibus, outside car, harness, and horses ..	£157	15	0
Furniture, cutlery, bedsteads, beds, bedding, clothing, &c., at the Isolation Hospital	450	0	9
Ditto at Refuge	100	10	3
Extra overalls for disinfectors	9	0	0
Disinfecting apparatus	121	10	0
New buildings at the Isolation Hospital	959	5	0
New buildings at the Refuge	302	0	0
Improvements at old buildings at the Isolation Hospital	664	0	0
New drains, tanks, &c., at the Isolation Hospital ..	189	5	7
Contributions from North and South Rural District Councils	50	0	0
Payment for treatment of patients and disinfection outside the city	81	13	6
Disinfection for private persons .. do. ..	1	0	3
	<hr/>		
Total ..	£3,086	0	4

The epidemic has undoubtedly caused the city a considerable cost, but I believe very much less than has been the case in other cities. In Glasgow alone £32,336 was paid for revaccinations during the epidemic of 1901–1902.

^a On the 18th of August there were still 10 convalescents in the house.

CONCLUSION.

The Public Health Committee devoted great attention to the subject of the small-pox epidemic, and provided liberally, but judiciously, the funds, without which it was impossible to combat it.

Dr. D. Edgar Flinn, F.R.C.S.I., Medical Inspector of the Local Government Board, called almost every day at the Public Health Office. He assisted by his advice and co-operation in stamping out the epidemic, and he approved the measures which were adopted for that purpose.

The authorities of the Hardwicke Hospital and of Cork-street Hospital rendered important services in reference to the epidemic.

The Rev. F. Smith, C.C., the Rev. J. S. Carolin, B.D., and the Rev. F. Mooney, C.C., were most kind and assiduous in their spiritual administration to the patients in the Isolation Hospital.

I think it right to make it known that Mr. Daniel Shiell, Mary's-lane, kindly had provision made for five orphans whose parents had died from small-pox, and whose father had been in his service.

Several of the Dispensary Physicians, especially Drs. Strahan, Garland, Crinion, Oulton, and Newell, rendered valuable assistance in connection with the epidemic.

In bringing this report to a close, it is my duty to place on record my appreciation of the valuable services rendered by the officers of the Public Health Department in combating the disease.

Mr. P. Nally, Assistant Secretary, had much to do in connection with the epidemic, especially the fiscal matters relating to it. He was early and late hard at work during the epidemic.

Mr. Henry Egan, Superintendent of Disinfection, devoted himself with the greatest zeal to the discharge of his onerous duties. He was early and late, Sunday and holiday at work. He never spared himself, and he is well deserving of particular recognition by the Public Health Committee.

The two inquiry officers, Messrs. Webb and Adrien, had a great deal to do in reference to the discovery of concealed cases, the conveyance of patients to hospital, and of "contacts" to the Refuge. They had to make extensive inquiries as to the

whereabouts of "contacts" who were not desirous of going to the Refuge. I had no cause to complain of inactivity or want of zeal on the part of those officers. The men engaged in the risky work of disinfection, both at the Depot, Marrowbone-lane, and in the infected houses, and in conveying patients and "contacts" to the Hospital and Refuge, performed their duties to my complete satisfaction.

The Sanitary Sub-Officers made a useful search for unvaccinated persons.

It is satisfactory that not a single person in any department under the control of the Public Health Committee contracted small-pox. This immunity, no doubt, was due to the staff having been thoroughly re-vaccinated at the very beginning of the epidemic. The number of persons more or less exposed to contagion was nearly 100.

GENERAL SEPSIS CAUSED BY THE PNEUMO-BACILLUS.

A PATIENT apparently suffering from sepsis, with marked involvement of the lung, was observed by F. Jenassen (*Münch. med. Woch.*, July 21, 1903). Other prominent symptoms were an enlarged and tender spleen, albuminuria, very rapid pulse and remittent temperature with only a single chill. From ten cubic centimetres of blood, taken from the cephalic vein, abundant growths of the Friedländer bacillus were obtained. The patient died after a week, and at the autopsy there were found pleuritis, multiple foci of consolidation in both lungs, abscess in the kidneys, abscess of the liver perforating into the free peritoneum, diffuse purulent peritonitis, splenic tumour and cloudy swelling of the heart, liver, and kidneys. The portal of entry could not be ascertained; the infection might have taken place from the lungs or tonsils, though the patient's history seems to point to a gastro-intestinal origin. The Friedländer bacillus has been found in purulent inflammations of almost all organs of the body, yet cases of general infection are rare, and reports on positive blood-cultures are still more infrequent in literature.—*Medical News*, N. Y., August 29, 1903.

PART IV.

MEDICAL MISCELLANY

Reports, Transactions, and Scientific Intelligence.

MEDICAL EDUCATION AND EXAMINATIONS IN IRELAND.

1903-1904.

MEDICAL students in Ireland, as elsewhere, have in the first instance to choose between University Degrees and Non-University Qualifications or Diplomas. Should they elect to try for an University Degree, their choice must lie between the University of Dublin, which requires a Degree in Arts before registrable Degrees in Medicine, Surgery, and Midwifery are conferred, and the Royal University of Ireland, which—while not requiring a full Arts Degree—yet rightly insists on a liberal education in Arts, tested by more than one searching examination in the same, before a candidate graduates in the three branches of medicine already mentioned—Medicine, Surgery, and Midwifery.

Outside the Universities, the chief Licensing Bodies are the Royal Colleges of Physicians and Surgeons. The Conjoint Examination Scheme between the Royal College of Surgeons in Ireland and the Apothecaries' Hall of Dublin has ceased to exist. The position of the latter body as a Licensing Corporation under the Medical Act of 1886 has been defined by the appointment of Examiners in Surgery by the General Medical Council at the bidding of His Majesty's Privy Council.

The Royal Colleges of Physicians and Surgeons are in a position to give a first-class working qualification in Medicine, Surgery, and Midwifery—a qualification which is registrable under the Medical Acts, which is universally recognised as one of high merit, and the possession of which is attended by no disabilities, such as preventing its possessor from dispensing medicines or keeping open shop for the sale of medicines, if he is legally qualified to do so.

The Medical Schools in Ireland are—(1.) The School of Physic in Ireland, Trinity College, Dublin; (2.) The Schools of Surgery of the Royal College of Surgeons in Ireland (including the Carmichael College of Medicine and the Ledwich School of Medicine); (3.) The Catholic University Medical School, Cecilia-street, Dublin; (4.) The School of Medicine, Queen's College, Belfast; (5.) The School of Medicine, Queen's College, Cork; and (6.) The School of Medicine, Queen's College, Galway.

Facilities for Clinical Instruction in fully-equipped Medico-Chirurgical Hospitals exist in Dublin, Belfast, Cork, and Galway; but, as a rule, the Schools of Medicine in Ireland are not attached to a given hospital, or *vice versâ*, as is the case in London and other large centres of medical education. The student will, however, have little difficulty in selecting a hospital in the wards of which he will receive excellent bedside teaching, and have ample opportunity of making himself familiar with the aspect and treatment of disease.

The detailed information which follows is authentic, being taken directly from the published calendars of the respective licensing bodies.

REGULATIONS PRESCRIBED BY THE GENERAL MEDICAL COUNCIL.

With regard to the course of Study and Examinations which persons desirous of qualifying for the Medical Profession shall go through in order that they may become possessed of the requisite knowledge and skill for the efficient practice of the Profession, the General Medical Council have resolved that the following conditions ought to be enforced without exception on *all* who commence their Medical Studies at any time after Jan. 1, 1892:—

(a.) With the exception provided below, the period of Professional Studies, between the date of registration as a medical student and the date of Final Examination for any Diploma which entitles its bearer to be registered under the *Medical Act*, must be a period of *bonâ fide* study during not less than five years.

(b.) In every course of Professional study and Examinations, the following subjects must be contained:—

- (I.) Physics, including the Elementary Mechanics of Solids and Fluids, and the rudiments of Heat, Light, and Electricity.
- (II.) Chemistry, including the principles of the Science, and the details which bear on the study of Medicine.

- (III.) Elementary Biology.
- (IV.) Anatomy.
- (V.) Physiology.
- (VI.) *Materia Medica* and Pharmacy.
- (VII.) Pathology.
- (VIII.) Therapeutics.
- (IX.) Medicine, including Medical Anatomy and Clinical Medicine.
- (X.) Surgery, including Surgical Anatomy and Clinical Surgery.
- (XI.) Midwifery, including Diseases peculiar to Women and to New-born Children.
- (XII.) Theory and Practice of Vaccination.
- (XIII.) Forensic Medicine.
- (XIV.) Hygiene.
- (XV.) Mental Disease.

The first four of the five years of Medical Study should be passed at a School or Schools of Medicine recognised by any of the Licensing Bodies, provided that the First Year may be passed at a University, or Teaching Institution, recognised by any of the Licensing Bodies, where the subjects of Physics, Chemistry, and Biology are taught.

A student who has, previous to registration, attended a course or courses of study in one or all of the subjects, Physics, Chemistry, or Biology, in any University, School of Medicine, or Teaching Institution recognised by any of the Licensing Bodies, may without further attendance be admitted to examination in these subjects: provided always that such course or courses shall not be held to constitute any part of the five years' course of professional study.

The exception referred to above in (a) is as follows:—

Graduates in Arts or Science of any University recognised by the General Medical Council who shall have spent a year in the study of Physics, Chemistry, and Biology, and have passed an Examination in these subjects for the Degrees in question, are held to have completed the first of the five years of Medical Study.

The Examinations in the Elements of Physics, Chemistry, and Biology should be passed before the beginning of the Second Winter Session.

The General Medical Council recommends the Licensing Bodies to require that the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries, British or foreign, recognised by any of the medical authorities mentioned in Schedule (A) of the Medical Act (1858), provided that of this year six months may be passed as a pupil to a registered practitioner possessing such opportunities of imparting medical knowledge as shall be satisfactory to the medical authorities.

I.

UNIVERSITY OF DUBLIN.

DEGREES AND DIPLOMAS IN MEDICINE, SURGERY, AND
MIDWIFERY.

The Degrees and Diplomas in Medicine, Surgery, and Midwifery granted by the University are as follow :—

The Degrees are :—

1. Bachelor in Medicine.
2. Bachelor in Surgery.
3. Bachelor in Obstetric Science.
4. Doctor in Medicine.
5. Master in Surgery.
6. Master in Obstetric Science.

The Diplomas are :—

1. Diploma in Public Health (formerly Qualification in State Medicine).
2. Diploma in Medicine.
3. Diploma in Surgery.
4. Diploma in Obstetric Science.

REGULATIONS FOR STUDENTS WHO MATRICULATED ON OR
BEFORE 25TH NOVEMBER, 1891.

As the number of students who matriculated before November, 1891, is now small, it seems unnecessary to print in full the conditions which must be fulfilled in order that such candidates should qualify for the Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.). The regulations for such candidates will be found in the *University Calendar* for 1900. The Registrar of the School of Physic in Ireland also will supply all information on application to him.

REGULATIONS FOR STUDENTS WHO MATRICULATED
SINCE 1891.

The following conditions must be fulfilled in order to qualify for the Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.) :—

I. The Student must be of B.A. standing, and his name must be for at least five (Academic) years on the Books of the Medical School, reckoned from the date of his Matriculation. He may carry on his Arts Course concurrently with his Medical Course,

and he need not have taken his B.A. before presenting himself for his Final Medical Examination, but he cannot have the Medical Degrees conferred without the Arts Degree.

II. The following Courses must have been attended:—

[NOTE.—The Courses marked thus (*) must have been taken out before the Student can present himself for any part of the Final Examination. In addition, the Courses marked thus (†) must have been taken out before he can present himself for Section B; the Courses marked thus (§) before he can present himself for the Final Examination in Midwifery; the Courses marked thus (§) before he can present himself for the Final Examination in Surgery; and the Courses marked thus (**) before he can present himself for the Final Examination in Medicine.

1. LECTURES.

WINTER COURSES.

* <i>Systematic Anatomy.</i>	* <i>Chemistry.</i>
* <i>Descriptive Anatomy, 1st year.</i>	† <i>Surgery.</i>
* <i>Descriptive Anatomy (with Dissections), 2nd year.</i>	* <i>Physiology (two Courses).</i>
* <i>Applied Anatomy (with Dissections).</i>	† <i>Practice of Medicine.</i>
* <i>Practical Physiology.</i>	‡ <i>Midwifery.</i>
	† <i>Pathology.</i>

SUMMER COURSES.

* <i>Practical Chemistry.</i>	† <i>Medical Jurisprudence and Hygiene.</i>
* <i>Practical Histology.</i>	§ <i>Operative Surgery.</i>
* <i>Botany.</i>	† <i>Practical Pathology.</i>
* <i>Zoology.</i>	
* <i>Materia Medica and Therapeutics.</i>	

TERM COURSES.

**Physics.*—Michaelmas, Hilary, and Trinity Terms.

‡§** 2. HOSPITAL ATTENDANCE.

1. Three Courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other Metropolitan Hospital recognised by the Board of Trinity College.

Students who shall have diligently attended the practice of a recognised London or Edinburgh Hospital for one year, of a recognised County Infirmary, or of a recognised Colonial Hospital for two years previous to the commencement of their Metropolitan Medical Studies, may be allowed, on special application to the Board of Trinity College, to count the period so spent as equivalent to one year spent in a recognised Metropolitan Hospital.

**3. PRACTICAL VACCINATION.

One month's instruction in Practical Vaccination to be attended

at the Vaccine Department, Local Government Board for Ireland, 45 Upper Sackville-street; at No. 1 East Dispensary, 11 Emerald-street; or, until further notice, at the Grand Canal-street Dispensary.

****4. MENTAL DISEASE.**

A Certificate of attendance on a three months' Course of Practical Study of Mental Disease in a recognised Institution.

‡5. PRACTICAL MIDWIFERY.

A Certificate of attendance on a six months' Course of Practical Midwifery with Clinical Lectures, including not less than thirty cases.

§6. OPHTHALMIC SURGERY.

A Certificate of attendance on a three months' Course of Ophthalmic Surgery.

III. The following Examinations must be passed:—

The Previous Medical or Half M.B. Examination.

The Final Examination.

The Previous Medical Examination must be passed in all its parts before any part of the Final can be entered for, except in the case of Candidates for Diplomas.

A.—PREVIOUS MEDICAL EXAMINATION.

This Examination is divided into—

1. Physics and Chemistry.

2. Botany and Zoology.

3. Anatomy and Institutes of Medicine (Practical Histology and Physiology).

The Examination in Anatomy includes examination on the dead subject.

Before presenting himself for examination in any of the subjects the Student must have obtained credit for the corresponding Courses of Lectures and Practical Instruction.

B.—THE FINAL EXAMINATION.

The Final Examination is arranged as follows:—

FIRST PART.

SECTION A.

Applied Anatomy (Medical and Surgical), paper.

Applied Physiology, *viva voce*.

Materia Medica and Therapeutics, paper and *viva voce*.

SECTION B.

Medical Jurisprudence and Hygiene, paper and *vivâ voce*.

Medicine, paper and *vivâ voce*.

Surgery, paper and *vivâ voce*.

Pathology, paper and *vivâ voce*.

Section A may be passed in any part of the Fourth Year, provided the corresponding Curriculum shall have been completed; Section B not before Trinity Term of the Fourth Year.

Section A must be passed before the Candidate can present himself for Examination in Section B. Both Sections must be passed at least one Term before the Candidate can present himself for the Final Examinations in Surgery, Medicine, or Midwifery.

Fee for the *Liceat ad Examinandum* £5, to be paid when the Candidate enters for Section A.

SECOND PART.

MEDICINE.

Clinical Medicine.

Mental Disease (Paper). • •

SURGERY.

Clinical Surgery.

Operations.

Ophthalmic Surgery (Clinical)

MIDWIFERY.

Midwifery, paper and *vivâ voce*.

Gynæcology, paper and *vivâ voce*.

Obstetrical Anatomy, paper.

One Section of the Second Part must be passed in Trinity Term of the Fifth Year, or subsequently. The other two may be passed in any Term of the Fifth Year, provided the corresponding Curriculum shall have been completed. Subject to this provision the Sections may be taken in any order.

Fee for the *Liceat ad Examinandum* £5, to be paid when the Candidate enters for the Section for which he first presents himself.

The Candidate must also produce Certificates of attendance at the Hospitals where the Courses prescribed for each Section are to be taken out.

UNIVERSITY DIPLOMAS.

Candidates for the Diplomas in Medicine, Surgery, and Obstetric Science must be matriculated in Medicine, and must have completed two years in Arts, and five years in Medical Studies.

The dates, regulations, and subjects of Examination are the same as for the Final Examination, except that it is not necessary to attend the Courses of Lectures in Botany and Zoology, nor to pass the Previous Medical Examination in these subjects.

A Diplomate on completing his Course in Arts and proceeding to the Degree of B.A. may become a Bachelor, by attending the Lectures on Botany and Zoology, passing the Previous Medical Examination in those subjects, and paying the Degree Fees.

The *Liccat* fees are the same as for the Finals.

Each Candidate who has completed the prescribed Courses of study and passed all the Examinations will be entitled, if a Graduate in Arts, to have conferred on him the Degrees of M.B., B.Ch., B.A.O., on payment to the Senior Proctor of the Degree Fees amounting to £17. A corresponding regulation applies to the Diplomas, the Fees for which are £11. He will also obtain from the Senior Proctor a Diploma, entitling him to be entered on the Register of Medical Practitioners under the Medical Act, 1886.

DIPLOMA IN PUBLIC HEALTH OR STATE MEDICINE.

The Diploma in Public Health is conferred, after examination, by the University of Dublin, upon Candidates fulfilling the following conditions:—

1. The Candidate must be a Doctor in Medicine, or Graduate in Medicine and Surgery, of Dublin, Oxford, or Cambridge.
2. The name of the Candidate must have been on the Medical Register at least twelve months before the Examination.
3. The Candidate must have completed, subsequent to Registration, six months in a Laboratory, recognised by the Provost and Senior Fellows, in practical instruction in Chemistry and Bacteriology applied to Public Health, and also have attended, practically, outdoor Sanitary work for six months, under an approved Officer of Health.^a
4. The Candidate must, after obtaining a registrable Qualification, have attended during three months the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of Methods of Administration.^a

NOTE 1.—Methods of Administration shall include methods of dealing with patients at their admission and discharge, as well as in the wards, and the Medical Superintendence of the Hospital generally.

^a These conditions do not apply to Practitioners registered, or entitled to be registered, on or before January 1, 1890.

NOTE 2.—In the case of a Medical Officer of the Royal Army Medical Corps, a Certificate from a Principal Medical Officer under whom he has served, stating that he has, during a period of at least three months, been diligently engaged in acquiring a practical knowledge of Hospital Administration in relation to Infectious Diseases, may be accepted as evidence under *Rule 4*.

NOTE.—These Regulations have been approved by the Board of Trinity College. No opportunity has occurred for submitting them to the Council.

The Examination to be passed by the Candidate is prescribed as follows :—

PART I.

Chemistry, paper and practical.

Experimental Physics and Meteorology, practical.

Bacteriology and Pathology, paper and practical.

Candidates are liable to be examined in the method of conducting *post-mortem* Examinations.

PART II.

Hygiene and Epidemiology, paper.

Sanitary Engineering, paper.

Public Health Acts and Vital Statistics, paper.

Practical Sanitary Report.

The two Parts may be passed in consecutive weeks or with an interval between, at the option of the Candidate, provided that the requisite curriculum for each Part has been completed before the Candidate presents himself.

Examinations for Part I. will begin on December 14th, 1903, March 21st, 1904, and June 6th, 1904; for Part II. on December 17th, 1903, March 24th, 1904, and June 9th, 1904.

Candidates are required to send in their names to the Registrar of the School of Physic at least a week before the first day of Examination.

Candidates who have registered since January 1st, 1890, are required to apply to the Board of Trinity College for leave to present themselves, a month before the Examination begins, and to submit at the same time Certificates of the required Courses of Study.

There is no fee.

The attention of Students is directed to the importance of obtaining a Diploma in Public Health as soon as possible after they obtain their Medical Degrees. An increasing number of Public Bodies are requiring it as well as the usual Qualifications in Medicine, Surgery, and Midwifery.

A collection of Sanitary Appliances has been placed in the Engineering Museum, with which Candidates should make themselves familiar.

II.

ROYAL UNIVERSITY OF IRELAND.

COURSES FOR DEGREES IN MEDICINE, SURGERY, AND OBSTETRICS.

General Regulations.

The Course for these Degrees shall be of at least five Medical years' duration; but Graduates in Arts or Science who shall have spent a year in the study of Physics, Chemistry, and Biology, and have passed an Examination in these subjects for the Degrees in question, shall be held to have completed the first of the five years of Medical Study.

Students who commenced their Medical Studies after Jan. 1, 1892, must furnish evidence of having been registered by the Medical Council, as Students in Medicine, for at least 57 months, before being admitted to the M.B., B.Ch., and B.A.O. Degrees Examination.

No one can be admitted to a Degree in Medicine who is not twenty-one years of age.

All Candidates for these Degrees, in addition to attending the lectures and complying with the other conditions to be from time to time prescribed, must pass the following Examinations:—

The Matriculation Examination.

The First University Examination.

The First Examination in Medicine.

The Second Examination in Medicine.

The Third Examination in Medicine.

The Examination for the M.B., B.Ch., B.A.O. Degrees.

The Course of Medical Studies shall be divided into five Periods of one Medical Year each.

Candidates shall furnish proper Certificates of attendance at the several Courses of Medical Instruction prescribed for the different years of the curriculum.

No such certificate will be received unless it attests a *bonâ fide* attendance at three-fourths of the whole Course. *Students are reminded that certificates of attendance at Night Lectures will not be accepted.*

No Certificates of instruction in any of the Courses of Medical

Studies, in connection with either Lectures or Hospitals, can be received, unless issued by an Institution which has been formally recognised by the Senate.

The prescribed courses in Natural Philosophy, Chemistry, Biology, Anatomy and Physiology must be attended in Institutions provided with the appliances required for the performance by the Students of proper Experimental Courses and Practical Work in these subjects.

Where Certificates in a special department (Fever, Mental Diseases, Ophthalmology, &c.) are presented, they must be signed by the Physician or Surgeon in charge of such department.

THE EXAMINATION FOR THE M.B., B.CH., B.A.O. DEGREES.

Candidates may present themselves for this Examination after an interval of such period, not being less than one Medical Year from the time of passing the Third Examination in Medicine, as the Senate may from time to time prescribe, provided they shall have completed the entire Medical Curriculum.

Printed forms of application for admission to this Examination may be had from "The Secretaries, the Royal University of Ireland, Dublin."

This Examination consists of three parts:—

- (a.) Medicine, Theoretical and Clinical, including Therapeutics, Mental Diseases, Medical Jurisprudence, Sanitary Science, and Medical Pathology.
- (b.) Surgery, Theoretical, Clinical, and Operative, including the use of Instruments and Appliances; Surgical Anatomy; Ophthalmology and Otology,* Surgical Pathology.
- (c.) Midwifery and Diseases of Women and Children.

All Candidates must enter for and go through the entire Examination, but a Candidate may be adjudged to have passed in any of the foregoing parts in which he satisfies the Examiners.

Upon completing satisfactorily his Examination in all three divisions, the Candidate will receive, in addition to the parchment Diplomas recording his admission to the M.B., B.Ch., B.A.O. Degrees, a Certificate of having passed a Qualifying Examination in the subjects of Medicine, Surgery, and Midwifery.

The fee for this Certificate is *Ten Pounds*, which must be paid before admission to these Degrees.

* Candidates at this Examination must exhibit reasonable proficiency in the use of the Ophthalmoscope and Laryngoscope.

HONOURS.

There are Special Examinations for Honours in connection with—

- The First Examination in Medicine.
- The Second Examination in Medicine.
- The Third Examination in Medicine.
- The M.B., B.Ch., B.A.O. Degrees Examination.

The Examinations for Honours are held subsequently to the corresponding Pass Examinations.

DIPLOMA IN SANITARY SCIENCE.

This Diploma is conferred only on Graduates in Medicine of the University.

Candidates may present themselves for this Examination after an interval of twelve months from the time of obtaining the M.B., B.Ch., B.A.O. Degrees.

Printed forms of application for admission to this Examination may be had from "The Secretaries, the Royal University of Ireland, Dublin."

Every Candidate must, when entering for the Examination, produce^a:—

- (a.) A Certificate of having, *after obtaining the M.B., B.Ch., B.A.O. Degrees*, attended during a period of six months Practical Instruction in a Laboratory approved by the University. The nature of this course is fully indicated by the detailed Syllabus of the Examinations in Physics, Climatology, Chemistry, Microscopy, Bacteriology, &c.
- (b.) A Certificate of having, *after obtaining the M.B., B.Ch., B.A.O. Degrees*, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under (a.)) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of:—
 - (1.) In England and Wales, the Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to Public Health Work; or
 - (2.) In Scotland, a Medical Officer of Health of a County or Counties, or of one or more Sanitary Districts having a population of not less than 30,000; or

^a These rules (a), (b), shall not apply to Medical Practitioners registered, or entitled to be registered, on or before January 1, 1890.

- (3.) In Ireland, a Medical Superintendent Officer of Health of a District or Districts having a population of not less than 30,000; or
- (4.) A Medical Officer of Health who is also a Teacher in the Department of Public Health of a recognised Medical School.
- (5.) A Sanitary Staff Officer of the Royal Army Medical Corps having charge of an Army Corps, District, or Command, recognised for this purpose by the General Medical Council.

*. * The certificate of an Assistant Medical Officer of Health of a County or of a single Sanitary District having a population of not less than 50,000 may be accepted as evidence under *Rule (b.)*, provided the Medical Officer of Health of the County or District in question permits the Assistant Officer to give the necessary instruction and to issue Certificates. Provided that the period of six months may be reduced to a period of three months (which shall be distinct and separate from the period of laboratory instruction required under *Rule (a.)*, in the case of any Candidate who produces evidence that, after obtaining a registrable Qualification, he has during three months attended a course or courses of instruction in Sanitary Law, Sanitary Engineering, Vital Statistics, and other subjects bearing on Public Health Administration, given by a Teacher or Teachers in the Department of Public Health of a recognised Medical School.

Every Candidate must produce evidence that, after obtaining a registrable Qualification, he has attended during three months the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the Study of Methods of Administration.

The Subjects of this Examination are:—

Physics ;
Climatology ;
Chemistry ;
Microscopy ;
Bacteriology ;
Geology ;
Sanitary Engineering ;
Hygiene, Sanitary Law, and Vital Statistics.

The Candidate must draw up reports on the Sanitary condition of Dwelling Houses, or other buildings selected for the purpose.

N.B.—Proficiency in practical work and an adequate acquaintance with the instruments and methods of research which

may be employed for Hygienic investigations are indispensable conditions of passing the Examination.

DIPLOMA IN MENTAL DISEASES.

This Diploma is conferred only on Graduates in Medicine of the University.

Printed forms of application for admission to this Examination may be had from "The Secretaries, the Royal University of Ireland, Dublin."

The subjects for this Examination are those prescribed for the Hutchinson Stewart Scholarship for proficiency in the treatment of Mental Disease.

BELFAST.

QUEEN'S COLLEGE.

Clinical instruction is given at the Belfast Royal Hospital. The Ulster Hospital for Diseases of Women and Children, the Belfast Maternity Hospital, the Belfast Ophthalmic Hospital, the Ulster Eye, Ear, and Throat Hospital, the Belfast District Lunatic Asylum, and the Belfast Hospital for Sick Children are open to students.

A pamphlet containing full information can be had free on application to the Registrar, Queen's College, Belfast.

CORK.

QUEEN'S COLLEGE.

Clinical instruction is given at the North and South Infirmaries (each 100 beds). Students also can attend the Mercy Hospital (60 beds), the Cork Union Hospital, the County and City of Cork Lying-in-Hospital, the Maternity, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglinton Lunatic Asylum. The session at Queen's College extends from October to April inclusive (twenty-seven weeks), but the hospitals are open to students in May, June, and July also, and arrangements have been made for the delivery of some of the three months' Courses of lectures during the months of April, May and June.

GALWAY.

QUEEN'S COLLEGE.

Clinical instruction is given at the Galway County Infirmary and the Galway Town Hospital.

Prizes.—Attached are eight scholarships of the value of £25 each. The Council may award Exhibitions to matriculated students at the examinations for junior scholarship. All scholarships and exhibitions of the second, third, and fourth years may be competed for by students who have attained the requisite standing in any medical school recognised by the College Council, and have passed the Matriculation Examination in the College, or in the Royal University of Ireland.

III.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

OUTLINE MEDICAL COURSE APPLICABLE TO CANDIDATES FOR THE LICENSES OF THE ROYAL COLLEGES.

These Regulations are obligatory on all Candidates commencing their Studies on or after October 1st, 1902.

PRELIMINARY EXAMINATION AND REGISTRATION.

The General Medical Council requires that every Candidate shall produce evidence—

- (a) Of having, before entering on medical studies, passed a Preliminary Examination in general education recognised by the General Medical Council ; and
- (b) Of having been registered by that Council as a Student in Medicine, according to Regulations, which may be obtained on application at the office of the General Medical Council, 299 Oxford-street, London, W., or its Branches—Dublin, 35 Dawson-street ; Edinburgh, 54 George-square.

The recognised Preliminary Examinations held in Ireland are :—
Public Entrance Examination of the University of Dublin ;
Matriculation Examination of the Royal University of Ireland ;
Conjoint Examination in Arts of the Royal Colleges of Physicians and Surgeons of Ireland ; Examinations of the Intermediate Education Board of Ireland—Middle and Senior Grades.

The Subjects are as follow :—

- (a) ENGLISH LANGUAGE, including specified authors, Grammar, Composition, Analysis, Parsing, History, and Geography.
- (b) LATIN, including Grammar, Translation from specified authors, and Translation of easy passages not taken from such authors.

- (c) MATHEMATICS, comprising (a) Arithmetic; (b) Algebra, as far as Simple Equations inclusive; (c) Geometry, the subject-matter of Euclid Books i., ii., and iii., with easy deductions.
- (d) ONE OF THE FOLLOWING OPTIONAL SUBJECTS: (a) Greek; (b) French; (c) German.

Each Candidate before receiving his Diplomas must produce a Registrar's Certificate, or other satisfactory evidence, that he has attained the age of twenty-one years.

PROFESSIONAL EXAMINATIONS.

REVISED SCHEME, 1902.

Every Candidate is required to pass four Professional Examinations.

Candidates will be admissible to the various Examinations as under:—

First Professional Examination not earlier than end of first winter session.

Second Professional Examination not earlier than end of second winter session.

Third Professional Examination not earlier than end of the third year of medical study.

Final Professional Examination not earlier than end of fourth year of medical study, but it cannot be completed till the end of the fifth year of medical study.

Before admission to any Examination every Candidate will be required to furnish evidence of having passed the previous Examination, and of having attended the various courses of instruction laid down in these Regulations for each Examination.

No Candidate shall be admitted to any Examination within three months of his rejection in the subjects of that Examination by this or any other Licensing Body.

FIRST PROFESSIONAL EXAMINATION.

FEES.

The Fee for this Examination is £15 15s.

SUBJECTS OF EXAMINATION.

The subjects of the First Professional Examination are:—

1. Chemistry and Physics.
2. Biology.

Every Candidate is required to produce evidence—

1. Of having passed in the subjects of the Preliminary Examination; and

2. Of having attended Courses of Instruction in

Winter { (a) Theoretical Chemistry; six months.
(b) Physics; six months.

Summer { (c) Practical Chemistry; three months.
(d) Biology; three months.

Four complete years of Medical Study must be attended at a recognised Medical School after passing the First Professional Examination, and before completing the Final Examination.

NOTE.—The subjects of the First Professional Examination may be studied either at a Medical School, or at an Institution other than a Medical School recognised by the Colleges, after due inspection, for instruction in these subjects.

SECOND PROFESSIONAL EXAMINATION.

FEEs.

The Fee for this Examination is £10 10s.

The subjects for the Second Professional Examination are :—

1. Anatomy. | 2. Physiology and Histology.

Every Candidate is required, before admission to the Second Professional Examination, to produce evidence of having passed the First Professional Examination; also Certificates of having attended :—

Anatomical Dissections; two courses of six months each;
or one course of six months and two courses of three months.*

Lectures :—

Winter { (a) Anatomy; six months.
(b) Physiology; six months.

Summer (c) Practical Physiology and Histology; three months.

THIRD PROFESSIONAL EXAMINATION.

FEEs.

The Fee for this Examination is £9 9s.

The subjects for the Third Professional Examination are :—

1. Pathology.

2. Materia Medica, Pharmacy, and Therapeutics.

3. Forensic Medicine and Public Health.

* One of the two Courses of Dissections necessary for the Second Professional Examination should be taken out in the First Year, although not required for the First Professional Examination.

Candidates are not admitted to this Examination before the end of the third year of Medical Study.

Every Candidate is required, before admission to the Third Professional Examination, to produce evidence of having passed the Second Professional Examination, and Certificates of having attended courses of instruction in—

(a) Pathology.

Winter { (1) A Systematic Course of three months.
(2) A Laboratory Course of practical instruction in a recognised Medical School; three months.

These Courses may be taken concurrently.

Summer { (b) Materia Medica, Pharmacy, and Therapeutics : three months.
(c) Public Health and Forensic Medicine; three months.*

Candidates are recommended to present themselves at the same time in all the subjects of each of the above Examinations; but may present themselves in one or more of the specified divisions separately, provided they have completed the curriculum as far as concerns the subjects or subject in which they present themselves.

FINAL PROFESSIONAL EXAMINATION.

FEEs.

The Fee for this Examination is £6 Gs.

The subjects of the Final Professional Examination are divided into three groups:—

1. Medicine, including Fevers, Mental Diseases, and Diseases of Children.
2. Surgery, including Operative and Ophthalmic Surgery.
3. Midwifery and Gynæcology, Vaccination, and Diseases of New-born Children.

Every Candidate is required before admission to produce evidence—

1. Of having passed the Third Professional Examination.
2. Of having attended—
 - (a) A Medico-Chirurgical Hospital for twenty-seven months (three Hospital years).
 - (b) A Midwifery Hospital, or Maternity, including evidence of having been present at thirty labours; six months.

* Nine of the twenty-seven months Hospital necessary for the Final Professional Examination should be taken out in the Third Year.

- (c) Clinical Instruction in Ophthalmic and Aural Surgery; three months.
- (d) Clinical Instruction in Mental Diseases; one month.
- (e) Vaccination, Certificate to be signed by a Public Vaccinator.
- (f) Courses of Instruction at a recognised Medical School in—
 - (a) Medicine; six months.
 - (b) Surgery; six months.
 - (c) Operative Surgery; three months.
 - (d) Midwifery (including diseases peculiar to women and to new-born children); six months.

Before admission to the Final Professional Examination in Medicine, satisfactory evidence must be produced of attendance in Fever Wards during either the third or subsequent year of Hospital attendance.

A Student at or after the end of his fourth year may present himself at any one of the groups 1, 2, or 3, provided he has completed his curriculum as far as concerns the group in which he presents himself. But one of the groups must be deferred till the end of his fifth year.

Candidates must have passed in *all* the Subjects of the Final Examination before any Diploma can be granted.

NOTE 1.—In the event of a Candidate showing himself ignorant of a subject or subjects, it shall be competent for the Committee of Management, on the recommendation of the Examiners, to require such Candidate, before presenting himself for re-examination, to produce evidence of such further instruction in such subject or subjects as the Committee of Management shall direct.

NOTE 2.—This curriculum shall be compulsory on all Students who commence their professional studies after the date of its adoption by the Colleges; and all Students at present studying under the old regulations shall be permitted to present themselves for examination under the new scheme at and after the Autumn Examinations, 1902: provided that, if any Student have presented himself for examination under the new scheme, he shall not be permitted to revert to the old scheme.

NOTE 3.—After the 1st of October, 1905, it shall be compulsory on all Students to present themselves under the new curriculum, save for such exemptions as the Committee of Management may decide to be necessary in order to prevent injustice.

NEW REGULATIONS.

Existing Candidates will be permitted to come under the foregoing Revised Scheme, 1902, as undernoted :—

FIRST PROFESSIONAL EXAMINATION.

Candidates who have passed in Biology, Chemistry and Physics can proceed to the Second Professional Examination.

SECOND PROFESSIONAL EXAMINATION.

Candidates who have passed in Anatomy, Senior Physiology and Histology can proceed to the Third Professional Examination.

NOTE.—Separate credit will not be allowed for Physiology and Histology, which are now grouped as one subject.

Candidates under the former Regulations, who have passed in Part I. of the Second Professional Examination, can forthwith proceed to an Examination in Advanced Physiology alone, to be held concurrently with the Third Professional Examination.

THIRD PROFESSIONAL EXAMINATION.

Candidates who have passed in Pathology, Therapeutics, and Forensic Medicine may proceed to the Final Examination. Candidates who have already passed in either Pharmacy or Materia Medica will be exempt from Examination in these subjects.

FINAL EXAMINATION.

No exemptions are allowed from any portion of the Final Examination,

EXEMPTIONS.

Candidates who, subsequent to 1st January, 1892, have passed in any of the required subjects at Examinations conducted by any Licensing Body recognised by the Royal College of Physicians and Royal College of Surgeons may, on application to the Committee of Management, be exempted from further examination in such subjects under this Conjoint Scheme.

Certificates of Study.

Winter Courses shall consist of not less than 50 Lectures, and Summer Courses of not less than 30 Lectures.

No Lecture Certificate shall be received unless the number of attendances certified thereon shall be at least *two-thirds* of these numbers.

As regards Medical and Surgical Hospital Certificates, the

number of daily attendances certified shall not be less than 80 for the Winter Session, and 40 for the Summer Session.

Every Candidate shall produce evidence of having acted as Medical Clinical Clerk for three months, and as Surgical Dresser for three months. These appointments cannot be held concurrently.

In Mental Diseases 12 attendances will be required.

**MATRICULATION AS PUPIL OF THE ROYAL COLLEGE OF
SURGEONS IN IRELAND.**

All persons proceeding to the study of Medicine may, if approved by the Council, become matriculated pupils of the College on payment of five guineas, and having done so, will enjoy the following privileges:—

1. They will, if matriculated before the preliminary examination, be admitted on payment of £1 1s. (half fee).

2. They will be permitted to study in the Library and Museums of the College.

3. Their fee for the First Professional Examination will be reduced by £5 5s.

DATES OF CONJOINT EXAMINATIONS.

Preliminary	-	-	-	-	March and September.
First Professional	-	-	-	-	April, June, and October.
Second	„	-	-	-	April, July, and October.
Third	„	-	-	-	April, July, and October.
Final Examination	-	-	-	-	April, July, and October.
Supplemental Final Examination					January.

**REGULATIONS FOR CANDIDATES FOR THE DIPLOMA
IN PUBLIC HEALTH.**

The following regulations are compulsory on all Candidates presenting themselves for Examination after January 1st, 1902, except as undernoted.

Stated Examinations for the Diploma in Public Health commence on the first Tuesday of the months of February, May, and November, and occupy four days.

A special Examination for the Diploma can be obtained—except in the months of August and September—on payment of £10 10s., in addition to the ordinary Fees mentioned below, and on giving notice at least one fortnight before the date of the proposed Examination.

Every Candidate for the Diploma in Public Health must be a Registered Medical Practitioner, or hold a registrable Qualification. He must return his name to the Secretary of the Com-

mittee of Management under the Conjoint Scheme, Royal College of Physicians, Dublin, three weeks before the Examination, and lodge with him a Testimonial of Character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh, together with certificates of the prescribed course of study.

Candidates registered as Medical Practitioners or entitled to be so registered after January 1st, 1890, must comply with certain Resolutions passed by the General Medical Council on December 1st, 1893, in regard to Diplomas in State Medicine.

* * * The Rules as to study shall not apply to Medical Practitioners registered, or entitled to be registered, on or before January 1st, 1890.

* * * The Executive Committee [of the General Medical Council] has power, in special cases, to admit exceptions to the Rules for the Registration of Diplomas in Sanitary Science, and report the same to the General Council.

The Fee for the Examination is Ten Guineas, which must be lodged in the Ulster Bank, Dublin, to the credit of the Committee of Management, at least two weeks before the date fixed for the Examination. Fees are not returned to any Candidate who withdraws from, or is rejected at, any Examination. The Fee for re-examination is Five Guineas.

The Examination for the Diploma in State Medicine comprises the following subjects:—Chemistry and Chemical Physics, Meteorology, Engineering and Architecture, Hygiene, Morbid Anatomy, Vital Statistics, Sanitary Law. There is an Examination in the Laboratory, and also an Oral and Practical Examination.

IV.

APOTHECARIES' HALL IN IRELAND.

The First, Second, and Third Professional Examinations are held four times a year—viz., commencing the third Monday in January, April, July, and October.

The Final Examinations are held in January and July.

The Fees payable for each Examination are as follow:—

First Professional	-	-	£5	5	0
Second „	-	-	5	5	0
Third „	-	-	5	5	0
Final Examination	-	-	6	6	0

Ladies who comply with the regulations will be admitted to these examinations.

Candidates may be admitted to a Special Examination, under

special circumstances, which must be laid before the Examination Committee. If the Candidate's application be granted, an extra fee of Ten Guineas over and above the full fee is required.

Candidates already on the Register will receive the Diploma of the Hall, on passing an Examination in the subjects which are not covered by their previous qualifications, and on paying a fee of Ten Guineas. If Medicine or Surgery is required, additional fees will be charged.

COURSE OF STUDY FOR THE DIPLOMA.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must, before proceeding to the Final Examination, produce evidence of having been registered as a Medical Student for 57 months; also of having attended Courses of Instruction as follows:—

Winter Courses of Six Months.

One Course each of the following:—

Anatomy (Lecture).

Chemistry—Theoretical.

Midwifery.

Practice of Medicine.

Physiology, or Institutes of Medicine.

Surgery.

Dissections, two courses of six months each.

Courses of Three Months.

One Course of each of the following:—

Materia Medica.

Medical Jurisprudence.

Chemistry—Practical.

Practical Physiology and Histology.

Operative Surgery.

Physics.

Clinical Ophthalmology.

Biology.

Clinical Instruction in Mental Disease.

Pathology.

Vaccination.

Medico-Chirurgical Hospital, twenty-seven months, to be distributed at the Student's own discretion over the last four years of his study. The Candidate may substitute for nine months in this Hospital Attendance six months as a Resident Pupil. He will be required to present a certificate of having taken notes of at least six Medical and six Surgical cases recorded under the supervision respectively of a Physician and Surgeon of his Hospital.

Three months' study of Fever—which may be included in his twenty-seven months' Hospital Attendance—in a Hospital containing Fever Wards, and having taken notes of five cases of Fever—viz., either Typhus, Typhoid, Scarlet Fever, Small-pox or Measles.

Six months' Practical Midwifery and Diseases of Women during the Winter or Summer of the third or the fourth year, at a recognised Lying-in Hospital or Maternity.

Three months' Practical Pharmacy, in a recognised Clinical Hospital or a recognised School of Pharmacy, or a year in the Compounding Department of a Licentiate Apothecary or a Pharmaceutical Chemist.

Each Candidate, before receiving his Diploma, must produce evidence that he has attained the age of twenty-one years.

Licentiates of this Hall are entitled to enter as Candidates for the Fellowship of the Edinburgh Royal College of Surgeons.

EXAMINATIONS FOR THE DIPLOMA.

All information relative to the Examinations may be obtained from the Registrar of the Apothecaries' Hall, 40 Mary-street, Dublin.

DENTAL EDUCATION AND EXAMINATIONS IN IRELAND.*

The Royal College of Surgeons in Ireland grants Diplomas in Dental Surgery under conditions of which the following is a synopsis:—

The Candidate must be twenty-one years of age before being admitted to the Final part of the Examination.

The Candidate must have passed three Examinations.

1. Preliminary (identical with the Medical Preliminary).
2. Primary Dental. Fee, £10 10s. (This Examination is much the same as the Second Conjoint Professional.)
3. Final Dental Examination. Fee, £10 10s. Candidates are examined in Dental Surgery and Pathology, and in Dental Mechanics, including the Metallurgy of the workshop.

Candidates are required to do gold fillings, and construct mechanical work in the presence of the Examiners.

The Certificates required may be divided into General and Special.

1. The General Certificates required are about the same as those required by the Medical Student for the Second Conjoint Professional Examination.

* Fuller particulars can be obtained by application to the Registrar, Royal College of Surgeons, St. Stephen's-green, Dublin.

The Special Certificates may be subdivided into—

1. Dental Hospital. 2. Practical Mechanical Dentistry.

1. Dental Hospital. Two years' attendance, with Lectures in Dental Surgery and Pathology and in Dental Mechanics. Fee, £28 7s.

2. Practical Mechanical Dentistry. Three years' instruction from a Registered Dentist. The fee for this is variable, but may be set down at from £50 to £150.

Large reductions in the Special Certificates required are made in the cases of qualified Medical Practitioners.

As regards Dental Hospital practice, full information is contained in the Calendar for 1903-4 of the School of Dentistry in connection with the Incorporated Dental Hospital of Ireland, Lincoln-place, Dublin. The Calendar may be obtained on application to the Dean, Dr. A. W. W. Baker.

NAVAL MEDICAL SERVICE.

The following are the new Regulations which were published in September, 1903 :—

REGULATIONS AS TO MEDICAL OFFICERS.

In which are embodied the provisions of the Orders in Council of 24th March, 1902, and 11th August, 1903.

PROMOTION.

1. An Inspector-General of Hospitals and Fleets will be selected from amongst Deputy Inspectors-General who have in that rank—

Three years' full pay service and who have not at any time declined foreign service except for reasons which the Lords Commissioners of the Admiralty regard as good and sufficient.

2. A Deputy Inspector-General of Hospitals and Fleets will be selected, for ability and merit, from amongst Fleet Surgeons.

- 3.—(a) Subject to the approval of the Lords Commissioners of the Admiralty, rank as Fleet Surgeon will be granted to Staff Surgeons at the expiration of eight years from the date of promotion to Staff Surgeon, provided they are recommended by the Medical Director-General and have not declined service except for reasons which in the opinion of the Lords Commissioners of the Admiralty are satisfactory.

- (b) Special promotions from the rank of Staff Surgeon to that of Fleet Surgeon will be made, at their Lordships' discretion, in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one

in two years ; the total number at any one time of fleet surgeons holding that rank by such special promotions will not exceed six.

4.—(a) Rank as Staff Surgeon will be granted, subject to their Lordships' approval, to surgeons at the expiration of twelve years from the date of entry, provided they are recommended by the Medical Director-General, and have passed such examination as may be required after completion of *five* years from the date of entry in the rank of Surgeon.

(b) Special promotions will be made, at their Lordships' discretion, to the rank of Staff Surgeon in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one a year. The total number at any one time of staff surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of eight years' time in rank of Surgeon will be dispensed with.

(c) When a surgeon's promotion to the rank of Staff Surgeon has been retarded by failure to pass the qualifying examination, he will, should he pass and be promoted, be dealt with as follows :—

He will be granted the seniority as Staff Surgeon he would have received had he passed in ordinary course.

He will reckon service for increase of full and half pay only from the date of appointment to full pay as Staff Surgeon.

If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination.

Where delay in passing the qualifying examination may be due to unavoidable circumstances, special consideration will be given.

(d) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the Official Navy List. Surgeons entered without competition * will take seniority next after the last surgeon entered at the same time by competition.

(e) The examination for promotion to the rank of Staff Surgeon will be held by the examining board to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, and naval hygiene.

Earlier promotion to the rank of Staff Surgeon may be granted to

* See Clause 8 of the Regulations for Entry.

those surgeons who, before entry, have held the post of legally qualified resident medical or surgical officer to a recognised civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities have been favourably reported on during the time they have served in the Navy. They may be granted from six months to one year's seniority, according to the time they have held their civil appointments, but in no case will more than one year's seniority be granted. The eligibility of the appointment to count for time will be decided by the Medical Director-General.

This applies only to officers who enter by competition.

(f) A candidate who at the time of passing the examination for entry into the medical branch of the Royal Navy holds, or is about to hold, an appointment as resident medical or surgical officer in a recognised civil hospital may be allowed to serve in such civil appointment provided that the period of such service after the date of entry into the Royal Navy does not exceed one year. Pay from naval funds will be withheld from officers while thus serving, but the time concerned will reckon for increase of full and half pay while on the active list and retired pay or gratuity on retirement or withdrawal, except that no officer will be allowed to retire on a gratuity until he has completed four years' service exclusive of the time spent as resident medical or surgical officer. The eligibility of this appointment will also be decided by the Medical Director-General.

RELATIVE RANK.

5. Is accorded as laid down in the King's Regulations and Admiralty Instructions.

6. Full Pay and Allowances.

Rank	Daily			Yearly		
	£	s.	d.	£	s.	d.
Surgeon :						
On entry	0	14	0	255	10	0
After 4 years' full-pay { including service } service { allowed by	0	17	0	310	5	0
After 8 years' full-pay { paragraph 4 (f) } service	1	0	0	365	0	0
Staff Surgeon :						
On promotion	1	4	0	438	0	0
After 4 years' full-pay service in rank	1	7	0	492	15	0
Fleet Surgeon :						
On promotion	1	10	0	547	10	0
After 4 years' full-pay service in rank	1	13	0	602	5	0
" 8	1	16	0	657	0	0
" " " " " "	2	2	0	766	10	0
Deputy Inspector-General				1,300	0	0
Inspector-General				Consolidated		

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On first appointment to the service medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1342 of the King's Regulations, 1899.

7. *The medical officers in charge of the following hospitals and sick quarters will be granted charge pay :—*

Haslar, Plymouth, Chatham, Malta, Hong-Kong, Bermuda, Jamaica, Portland, Yarmouth, Haulbowline, Cape, Gibraltar, Yokohama, Esquimalt, and Ascension.

The rate of charge pay will be as follows :—

<i>Inspectors-General</i>	..	..	..	10s. 0d. a day.
<i>Deputy Inspectors-General</i>	..	..	..	7 6 ..
<i>Fleet Surgeons</i>	..	..	..	5 0 ..
<i>Staff Surgeons</i>	..	..	..	2 6 ..

8. The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows :—

	At Home	Abroad
	£	£
Deputy Inspectors-General	67	112
Fleet Surgeons and Staff Surgeons	53	112
Surgeons	39	108

9. An allowance of 5s. a day in addition to full pay is granted to the senior medical officer, being a Fleet or Staff Surgeon of a flagship bearing the flag of a commander-in-chief on a foreign station or of the senior officer commanding the Channel Squadron, and an allowance of 2s. 6d. a day to the senior medical officer, being a Fleet or Staff Surgeon of the ship of a commodore or of a senior officer commanding a foreign station. An allowance of 2s. 6d. a day may also be granted to the senior medical officer, being a Fleet or Staff Surgeon, in ships carrying the flags of flag officers or the broad pendants of commodores not commanding stations. The conditions governing the payment of these allowances are laid down in Art. 1432 of the King's Regulations.

10. The following charge allowances may be granted to medical officers in charge of hospital ships :—

If above the rank of Fleet Surgeon .. 5s. 0d. a day.

If of the rank of Fleet Surgeon or junior 3 6 ..

11. The Fleet and Staff Surgeons serving at the Admiralty and the Marine Rendezvous will be granted the hospital allowance of £53 a year in addition to the usual lodging money.

Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances :—

Two senior officers employed upon this duty £150 a year each.

The junior officer assisting 50 a year.

The junior officer instructing the sick
berth staff 50 „

The junior officer instructing the sick berth
staff at Plymouth 50 „

Medical officers employed elsewhere than at a hospital and not victualled in kind receive an allowance of 1s. 6d. a day in lieu of provisions, fuel, and lights, under the conditions laid down in the King's Regulations.

12. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

13. Half Pay.

Rank		Daily			Yearly		
		£	s.	d.	£	s.	d.
Surgeon :							
Under 2 years' full-pay service		0	6	0	109	10	0
After 2	"	0	7	0	127	15	0
" 4	"	0	8	0	146	0	0
" 6	"	0	9	0	164	5	0
" 8	"	0	10	0	182	10	0
" 10	"	0	11	0	200	15	0
Staff Surgeon :							
On promotion		0	12	0	219	0	0
After 2 years' full-pay service in rank		0	13	0	237	5	0
" 4	"	0	14	0	255	10	0
" 6	"	0	15	0	273	15	0
Fleet Surgeon :							
On promotion		0	17	0	310	5	0
After 2 years' full-pay service in rank		0	18	0	328	10	0
" 4	"	0	19	0	346	15	0
" 6	"	1	0	0	365	0	0
Deputy Inspector-General :							
On promotion		1	5	0	456	5	0
After 2 years' full-pay service in rank		1	7	0	492	15	0
" 4	"	1	9	0	529	5	0
Inspector-General		1	18	0	693	10	0

Retirement.

14. Compulsory retirement will be as follows :—

Inspector and Deputy Inspector-General of Hospitals and Fleets—
At the age of 60, or at any age, if he has not served for 5 years.
Except that if in any particular case the Lords Commissioners of

the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an Inspector-General of Hospitals and Fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.*—To be retired irrespective of age if found physically unfit for service.

Fleet Surgeon, Staff Surgeon, and Surgeon—At the age of 55, or at any age, if he has not served for 5 years.—To be retired irrespective of age if found physically unfit for service.

15. *Voluntary retirement and withdrawal will be allowed as follows :—*

(a) *Every officer will have the option, subject to their Lordships' approval, of retiring after 20 years' full-pay service on the scale of retired pay provided in paragraph 16, or with a gratuity on the scale provided in that paragraph if not eligible for retired pay.*

(b) *At the expiration of 4, 8, 12, or 16 years' full-pay service, every officer will be permitted, subject to their Lordships' approval, to withdraw from the Naval Service, receiving a gratuity on the scale laid down in paragraph 16.*

NOTE.—The four years' service is exclusive of time served as resident officer in a civil hospital, see paragraph 4 (f).

The name of an officer so withdrawing will be removed from the Lists of the Navy, with which all connection will then be severed, except in the case of officers who withdraw after four years who are liable to serve in the reserve.

Should an officer leave the service after four years with a gratuity of £500 he will be required to join the reserve of naval medical officers for a period not exceeding eight years. During this period his name will appear in the Navy List, he will be allowed to wear naval uniform under the usual regulations applying to officers on the retired and reserved lists, and he may place R.N. after his name. He may choose his service in the reserve as follows :—

- (1) *He may simply enter the reserve with power to give six months' notice of his intention to resign his position, the total period of membership, however, not to exceed eight years.*
- (2) *He may bind himself to remain in the reserve for four years, receiving a retaining fee of £25 per annum, and at the expiration of this time may again bind himself to serve for another four years, receiving the same retaining fee.*
- (3) *He may enter the reserve for the first four years as in paragraph 2, and then by renouncing his retaining fee volunteer*

* Order in Council, May 17th, 1890.

to continue membership for another four years as in paragraph 1.

Officers of the reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service after the expiration of any period unemployed they will immediately receive the rate of pay to which they would have been entitled after four years' service—viz., 17s. a day.

(c) Voluntary retirement and withdrawal at the discretion of their Lordships will be allowed, as a rule, only when an officer is unemployed or serving at home. Under special circumstances, however, it may be permitted in the case of an officer serving abroad, provided he is prepared to pay his successor's passage to relieve him if necessary.

In order that arrangements may, as far as possible, be made for the relief of officers who may wish to withdraw on a gratuity it is desirable that six months' notice of their wish should be forwarded for the consideration of their Lordships.

(d) Applications from officers to retire or withdraw, or resign their commissions will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry.

(e) The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

16. Gratuities and retired pay will be awarded on retirement and withdrawal on the undermentioned scale :—

Rank	Gratuities	Daily	Yearly
	£ s. d.	£ s. d.	£ s. d.
Surgeon and Staff Surgeon—			
After 4 years' full-pay service ..	500 0 0	—	—
" 8 ^a " " " ..	1,000 0 0	—	—
" 12 ^a " " " ..	1,500 0 0	—	—
" 16 ^a " " " ..	2,250 0 0	—	—
Fleet Surgeon—			
After 20 years' service (including proportion of half-pay time) ..	—	1 0 0	365 0 0
After 24 years' service (including proportion of half-pay time) ..	—	1 2 6	410 12 6
After 27 years' service (including proportion of half-pay time) ..	—	1 5 0	456 5 0
After 30 years' service (including proportion of half-pay time) or on compulsory retirement at the age of 55 ..	—	1 10 0	547 10 0
Deputy Inspector-General ..	—	1 15 0	638 15 0
Inspector-General ..	—	2 0 0	730 0 0

^a Including service allowed by paragraph 4 (f).

^b To obtain this rate an officer must hold the commission of Fleet Surgeon.

17. An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the service, will receive the half pay of his rank, or, with the consent of their Lordships, a gratuity on the scales given in paragraphs 16 and 18 (b), but such officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above.

18. An officer retired with less than 20 years' service on account of disability, contracted in but not attributable to the service, will receive—

(a) If he has over eight years' full-pay service, either a gratuity on the scale given in paragraph 16, or half-pay, according as their Lordships think fit ;

(b) If he has less than eight years' full-pay service, such gratuity as their Lordships think fit, not exceeding the rate of £125 for each year of full-pay service.

19. Under circumstances other than those specified in paragraphs 17 and 18, and other than misconduct, neglect of duty, &c., an officer retired with less than 20 years' service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in paragraph 16, if he has eight years' full-pay service, and on that provided in paragraph 18 (b) should his full-pay service not amount to eight years.

20. The power vested in their Lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit.

21. An officer retiring after 20 years' full-pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their Lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension.

22. All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement.

This liability will not exist in cases of withdrawal on the conditions specified in paragraph 15 (b), *except as indicated in that paragraph as regards officers who withdraw after four years on a gratuity of £500.*

23. Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty, now filled by civilians.

WIDOW'S PENSION.

24. When an officer retires, or withdraws, on a gratuity, his widow and children will have no claim to pension or compassionate allowance.

Officers serving in the reserve who during re-employment are injured on duty, or lose their lives from causes attributable to the service, come under the same regulations as regards compensation for themselves, or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent active list.

MISCELLANEOUS.

25. A special cabin will be appropriated to the Fleet or Staff Surgeon, or Surgeon in charge of the medical duties in each ship.

26. Special regulations have been made as regards the mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods.

27. Every medical officer will be required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the service permit), and this is as far as possible during his surgeon's, staff surgeon's and fleet surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will be granted lodging and provision allowances, and travelling expenses as for service under the regulations to and from his home or port; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following:—

- I. The medical and surgical practice of the hospital;
- II. A course of operative surgery on the dead body;
- III. A course of bacteriology;
- IV. A course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction;
- V. A practical course of skiagraphy.

The new regulations for the naval medical officers are preceded by the regulations for the entry of candidates for commissions in the medical department of the Navy, but these regulations are unchanged.

REGULATIONS FOR THE ENTRY OF SURGEONS FOR TEMPORARY SERVICE IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

Surgeons who may be temporarily employed in the Royal Navy to meet the requirements of the Service will be appointed under the following regulations :—

QUALIFICATIONS.

To be registered under the Medical Act as qualified to practice Medicine and Surgery in Great Britain and Ireland.

To produce certificates of good character.

To be reported physically fit after medical examination.

Age not to exceed 40 years.

PAY AND ALLOWANCES.

Full Pay—22s. a day; £401 10s. a year.

Half Pay—10s. a day; £182 10s. a year.

Note.—Half pay is for sickness and extra leave only.

To be granted 30 days' advance of pay on joining a ship after appointment.

To receive the same allowances as are payable to permanent Officers of their rank.

Lodging money at the rate of £50 a year is usually allowed when employed on shore without Quarters in the United Kingdom, and £24 a year in lieu of rations. In cases, however, of temporary employment on shore, the lodging and provision allowances will be at the rate of 3s. 6d. and 1s. 6d. per day respectively.

If Quarters are provided in a Medical Establishment, an allowance is granted in lieu of provisions, for self and servant, and for fuel and lights at the rate of £39 a year in the United Kingdom, to £108 a year abroad.

UNIFORM.

Each Surgeon to provide himself as follows :—(1.) Frock Coat, waistcoat, and trousers. (2.) Undress coat. (3.) Uniform cap. (4.) Mess jacket and waistcoat. (5.) Sword and undress belt. All as specified in the Uniform Regulations.

To cover the above each officer accepted for service will receive an Equipment Allowance of £20 (payable on the officer's being called up for active service).

The following instruments must be provided by the Surgeon :—A Pocket case of Instruments. A Stethoscope. Three Clinical Thermometers.

MESSING.

Surgeons will be allowed, when attached to ships in commission,

the ordinary ship's rations; but will have to pay about 2s. a day towards the maintenance of their mess as Ward-room Officers.

PENSIONS FOR WOUNDS AND TO WIDOWS, &c.^a

In the event of Surgeons engaged for temporary service being wounded in His Majesty's Service, Gratuities or Pensions, varying in amount according to the injuries sustained, will be granted, on the basis of the awards in similar cases of Naval Officers.

Should Temporary Service Surgeons be killed in action, die within six months of wounds received in action, or meet their death by acts of the enemy, the following Pensions and Allowances will be granted to their widows, children, &c. :—

	Widows		Children up to the Age of 18 for Boys, and 21 for Girls		Widowed Mothers dependent on their Sons, if the latter left no Widows or Children	Orphan Sisters dependent on their Brothers, if the latter left no Mothers, Widows, or Children.
	Killed in Action	Drowned &c., by Acts of the Enemy	Killed in Action	Drowned &c., by Acts of the Enemy	Killed or drowned, or suffered Violent Death by Acts of the Enemy	Killed or drowned, or suffered Violent Death by Acts of the Enemy
	£	£	£	£	£	£
Surgeon	80	65	12 to 16	10 to 14	50	50

In addition to the foregoing pensions, the widows and children of officers killed in action will be granted the following gratuities :—

Widows—One year's pay of their husband's corresponding rank in the Royal Navy.

Each unmarried child under the age of 21, one-third of the Gratuity paid to the widow.

These Pensions and Gratuities can be given only in cases of injury or death caused by acts of the enemy, and not on account of injury, disability or death, which may result from carrying on the ordinary duties of the Service.

CONDITIONS OF SERVICE.

To engage for six months certain, but the liability to serve will be limited to five years.

To serve when and where required from the date of signing the Declaration.

To be liable to immediate discharge for misconduct or incompetency.

^a Unmarried candidates will be preferred.

To rank with, but after, Surgeons in the permanent service.

To be under the general rules of the Service as regards discipline, &c.

To receive two calendar months' notice of services being no longer required.

To be granted a gratuity of two calendar months' pay on discharge, if not discharged for misconduct or incompetency.

Voluntary resignation of appointment will be allowed subject to the convenience of the service, but the gratuity of two calendar months' pay on discharge will be thereby forfeited.

The following form of Declaration and of Schedule of Qualifications will be required from Candidates :—

DECLARATION.

I (Christian and Surname at full length), a Candidate for temporary service as Surgeon in the Royal Navy, do hereby engage for general service, and attest my readiness to proceed on duty abroad whenever required to do so, upon the terms specified in these regulations.

I declare—1st. That I am years of age, and that I was born on 18 at

2nd. That I am^a

3rd. That I labour under no mental or constitutional disease or weakness, nor any other imperfection or disability which can interfere with the most efficient discharge of the duties of a Medical Officer in any climate.

4th. That I am registered under the Medical Act in force as duly qualified professionally, and that I hold the following Diplomas, &c., in Medicine and Surgery :—

Signature

Date

N.B.—A misstatement by a Candidate will invalidate any subsequent appointment, and cause forfeiture of all privileges for services rendered.
 Medical School ^b Present Address ^c Permanent Address of Parents or near Relative.

NOTE.—The Certificates of Birth (*not of Baptism*) or Declaration thereof made before a Magistrate, of Medical Registration and of character (*up to date*) must accompany this Declaration.

Copies of the Regulations and Declaration Form can be obtained from the Medical Department of the Navy.

^aHere insert "of pure European descent and the son either (a) of natural born British subjects, or (b) of parents naturalised in the United Kingdom."

NOTE.—If any doubt should arise upon this question the burden of clear proof that he is qualified must rest upon the candidate himself.

^bAny change of address to be notified to the Director-General, Medical Department of the Navy, Admiralty, London.

^cThis address is required for communications during an Officer's absence from England, when on service.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D., Univ. Dubl. ;

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VITAL STATISTICS.

For four weeks ending Saturday, September 12, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending September 12, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 16.5 per 1,000 of their aggregate population, which for the purposes of these returns, is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, September 12, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Aug. 22	Aug. 29	Sept. 5	Sept. 12			Aug. 22	Aug. 29	Sept. 5	Sept. 12	
22 Town Districts	19.2	20.1	16.1	16.5	18.0	Lisburn -	13.6	18.2	18.2	22.7	18.2
Armagh -	13.7	20.6	20.6	6.9	15.5	Londonderry	27.7	29.0	17.6	16.4	22.7
Ballymena	19.2	9.6	19.2	19.2	16.8	Lurgan -	8.9	4.4	8.9	17.7	10.0
Belfast -	15.0	19.0	16.0	16.6	16.7	Newry -	16.8	25.2	42.0	21.0	26.3
Clonmel -	10.3	0.0	0.0	25.6	9.0	Newtown- ards	22.9	5.7	17.2	17.2	15.8
Cork -	22.6	20.5	21.9	14.4	19.9	Portadown -	31.0	10.3	15.5	0.0	14.2
Drogheda -	16.3	16.3	12.3	16.3	15.3	Queenstown	13.2	19.8	33.0	6.6	18.2
Dublin (Reg. Area)	22.9	23.1	15.4	18.7	20.0	Sligo -	19.2	14.4	9.6	4.8	12.0
Dundalk -	4.0	0.0	16.0	4.0	6.0	Tralee -	5.3	52.8	21.1	5.3	21.1
Galway -	15.5	50.5	3.9	19.4	22.3	Waterford -	21.4	5.8	19.5	17.5	16.1
Kilkenny -	49.1	14.7	9.8	14.7	22.1	Wexford -	9.3	18.7	18.7	28.0	18.7
Limerick -	17.8	10.9	8.2	6.8	10.9						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, September 12, were equal to an annual rate of 2.2 per 1,000, the rates varying from 0.0 in twelve of the districts to 9.6 in Ballymena—the 4 deaths from all causes registered in that district including 2 from diarrhoeal diseases. Among the 114 deaths from all causes registered in Belfast are 3 from whooping-cough, one from diphtheria, 6 from enteric fever, and 12 from diarrhoeal diseases. The 9 deaths from all causes registered in Waterford include 3 from diarrhoeal diseases.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, September 12, amounted to 198—99 boys and 99 girls; and the deaths to 145—67 males and 78 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 19.9 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the Area, the rate was 18.7 per 1,000. During the thirty-six weeks ending with Saturday, September 12, the death-rate averaged 24.1, and was 2.3 below the mean rate for the corresponding portions of the ten years 1893–1902.

No death from small-pox was registered during the said week.

There was one death each from diphtheria, enteric fever, and whooping cough. There were 4 deaths from epidemic or zymotic enteritis, 2 from *diarrhæa*, and one from dysentery.

Tuberculous disease caused 31 deaths, including 8 from tubercular phthisis, 21 from *phthisis*, and one from tubercular peritonitis.

Sarcoma caused one death, and *cancer (malignant disease)* 2.

Diseases of the nervous system caused 16 deaths, including 6 (all of children under one year old) from *convulsions*.

There were 22 deaths from diseases of the heart and blood-vessels.

Diseases of the respiratory system caused 11 deaths, being equal to an annual rate of 1.5 per 1,000 of the estimated population of the Dublin Registration Area, the average annual rate for the corresponding period of the previous 10 years being 2.6 per 1,000. The 11 deaths include 9 from bronchitis, one from croupous pneumonia, and one from *pneumonia*.

There were 5 deaths from accidental violence.

In 9 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 5 children under one year old, and the death of one person aged 64 years.

Thirty-seven of the persons whose deaths were registered during the week in question were under 5 years of age (29 being infants under one year, of whom 11 were under one month old), and 38 were aged 60 years and upwards, including 13 persons aged 70 and upwards, of whom 5 were octogenarians, and one (a man) was stated to have been aged 95 years.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast:—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended September 12, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Group	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	Aug. 22	-	-	-	7	-	-	13	-	-	20	12	-	1	-	33
	Aug. 29	1	22	-	8	-	-	7	-	2	17	24	-	4	1	66
	Sept. 5	-	12	-	9	1	-	5	-	1	20	18	-	2	-	55
	Sept. 12	-	5	-	11	4	-	5	-	-	24	12	-	-	1	62
Rathmines and Rathgar Urban District	Aug. 22	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
	Aug. 29	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	Sept. 5	-	-	-	2	-	-	-	-	-	-	1	-	-	1	4
	Sept. 12	-	1	-	2	-	-	1	-	-	2	1	-	-	1	5
Pembroke Urban District	Aug. 22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aug. 29	-	-	-	1	-	-	-	-	1	3	2	-	1	-	5
	Sept. 5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
	Sept. 12	-	2	-	-	-	-	-	-	-	-	1	-	-	-	3
Blackrock Urban District	Aug. 22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aug. 29	-	-	-	2	-	-	-	-	-	1	-	-	-	-	3
	Sept. 5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	Sept. 12	-	-	-	2	-	-	-	-	-	1	1	-	-	-	4
Kingstown Urban District	Aug. 22	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2
	Aug. 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sept. 5	-	-	-	4	-	-	-	-	-	9	-	-	-	-	13
	Sept. 12	-	-	-	2	-	-	-	-	-	4	1	-	-	-	7
City of Belfast	Aug. 22	-	-	-	11	-	-	6	1	26	22	4	-	-	-	70
	Aug. 29	-	-	-	11	-	-	1	-	16	18	4	-	-	-	50
	Sept. 5	-	-	-	9	-	-	13	-	11	31	8	-	-	-	72
	Sept. 12	-	-	-	9	-	-	4	-	14	22	12	2	-	-	63

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, September 12, 1903, one case of small-pox was discharged from hospital, and 3 patients remained under treatment at its close. One of these was a patient sent back to the Isolation Hospital from Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital. The Beneavin Convalescent Home is now closed for the present.

Six cases of measles were discharged from hospital, and 6 cases of this disease remained under treatment at the close of the week.

Sixteen cases of scarlatina were admitted to hospital, 15 cases were discharged, and 93 cases remained under treatment at the close of the week.

Four cases of diphtheria were admitted to hospital, 11 were

discharged, there was one death, and 24 cases remained under treatment at the close of the week.

Fourteen cases of enteric fever were admitted to hospital, 10 cases were discharged, and 67 cases remained under treatment at the close of the week.

Three cases of typhus fever were admitted to hospital, one case was discharged, and 4 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, 4 patients were discharged, and 7 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, September 12, in 76 large English towns, including London (in which the rate was 15.2), was equal to an average annual death-rate of 15.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 14.4 per 1,000, the rate for Glasgow being 14.9, and for Edinburgh 12.7.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of August, 1903.

Mean Height of Barometer,	-	-	-	29.774 inches
Maximal Height of Barometer (25th, at 9 p.m.),	-	-	-	30.180 „
Minimal Height of Barometer (14th, at 9 p.m.),	-	-	-	28.837 „
Mean Dry-bulb Temperature,	-	-	-	56.8°.
Mean Wet-bulb Temperature,	-	-	-	54.1°.
Mean Dew-point Temperature,	-	-	-	51.5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.382 inch.
Mean Humidity,	-	-	-	82.7 per cent.
Highest Temperature in Shade (on 30th),	-	-	-	70.9°.
Lowest Temperature in Shade (on 21st),	-	-	-	46.1°.
Lowest Temperature on Grass (Radiation) (on 21st and 22nd),	-	-	-	43.0°.
Mean Amount of Cloud,	-	-	-	62.7 per cent.
Rainfall (on 26 days),	-	-	-	2.800 inches
Greatest Daily Rainfall (on 13th),	-	-	-	.470 inch.
General Directions of Wind,	-	-	-	W., S.W.

Remarks.

August, 1903, was very unsettled, cool, rainy, and windy. Atmospheric pressure was in a very unstable condition all over North-western Europe, and cyclonic depressions with their secondaries kept chasing each other in a north-easterly or easterly direction along the Atlantic Coasts throughout the month. The force of the wind was unusual for the time of year. So far as Dublin is concerned, the rainfall was remarkable for frequency more than for quantity—as a matter of fact the total precipitation, 2.800 inches, fell short of the average by about a quarter of an inch. There were, however, as many as 26 “rainy days,” and on two of the 5 dry days slight rain also fell. On Monday, the 3rd, Snowdon and the whole range of the Welsh mountains were seen from the Wicklow uplands, just as they had been on Monday, August 4, 1902. A severe thunderstorm, which passed directly over Dublin on the afternoon of the 24th, was connected with a cyclonic system which travelled from the mouth of the Shannon to Cornwall and thence to Norfolk in the 24 hours ending at 8 a.m. of the 25th. The thunder and lightning were of exceptional violence and may best be described in the words of Horace—

“Diespiter,

Igni corusco nubila dividens,

Plerumque per purum tonantes,

Egit equos, volucremque currum.”

Only once did the thermometer rise above 70° in the shade in Dublin—on the 30th, when the maximum was 70.9°. The duration of bright sunshine was estimated at 169 hours, or a daily average of 5.4 hours, compared with a twenty years’ average of 162.7 hours, or 36 per cent. of its possible duration, recorded at the Ordnance Survey Office, Phoenix Park.

In Dublin the arithmetical mean temperature (58.4°) was identical with that of August, 1902, but distinctly below the average (59.7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 56.8°. In the thirty-eight years ending with 1902, August was coldest in 1881 (M. T. = 57.0°), and warmest in 1899 (M. T. = 63.4°).

The mean height of the barometer was 29.774 inches, or 0.123 inch below the corrected average value for August—namely, 29.897 inches. The mercury rose to 30.180 inches at 9 p.m. of the 25th, and fell to 28.837 inches at 9 p.m. of the 14th. The observed range of atmospheric pressure was, therefore, 1.343 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 56.8° . It was 1.5° below the value for July, 1903. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{Max.} - \text{Min.} \times .47)$, the mean temperature was 58.0° or 1.3° below the average mean temperature for August, calculated in the same way, in the thirty years, 1871–1900, inclusive (59.3°). The arithmetical mean of the maximal and minimal readings was 58.4° , compared with a thirty years' average of 59.7° . On the 30th the thermometer in the screen rose to 70.9° —wind, W.S.W.; on the 21st the temperature fell to 46.1° —wind, W.N.W. The minimum on the grass was 43.0° on the 21st and again on the 22nd.

The rainfall was 2.800 inches, on 26 days. The average rainfall for August in the thirty-five years, 1866–1900, inclusive, was 3.040 inches, and the average number of rainy days was 17. The rainfall, therefore, was below the average by nearly one quarter of an inch, while the rainy days were much above it. In 1900 the rainfall in August was very large—5.871 inches on 17 days, establishing a record for August in Dublin; in 1889, 5.747 inches were registered on 22 days. On the other hand, in 1884 only .777 inch was measured on 8 days. In 1902, 2.949 inches fell on 18 days.

High winds were noted on as many as 18 days, and attained the force of a gale on 5 days—the 15th, 26th, 27th, 30th and 31st. Temperature reached 70° in the screen on only one day, compared with 18 days in August, 1899, 6 in 1900, 7 in 1901, and one day in 1902. On the 8th, however, the thermometer rose to 69.9° . Lightning was seen on the 15th and 26th. Thunderstorms occurred on the 18th and 24th—the latter being very severe.

The rainfall in Dublin during the eight months ending August 31st amounted to 21.872 inches on 157 days, compared with 18.456 inches on 133 days in 1902, 14.384 inches on 106 days in 1901, 23.480 inches on 146 days in 1900, 18.200 inches on 117 days in 1899, 16.516 inches on 124 days in 1898, 19.388 inches on 149 days in 1897, 14.464 inches on 120 days in 1896, 9.455 inches on 96 days during the same period in 1887, and a thirty-five years' average of 17.660 inches on 130 days.

The rainfall at Cloneevin, Killiney, is returned as 3.03 inches on 24 days, 1.15 inches falling in a thunderstorm on the 18th, 0.70 inch being recorded between 2 30 and 5 15 p.m. The

average rainfall in August at this station in the 18 years, 1885-1902, was 3.152 inches on 16.6 days. Since January 1, 1903, 20.42 inches of rain have fallen at Cloneevin on 146 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, County Dublin, rain fell on 25 days, the total measurement being 2.780 inches, and the heaviest rainfall in 24 hours being .600 inch on the 13th. The corresponding figures for August, 1901, were 3.11 inches on 16 days, and for August, 1902, 2.73 inches on 18 days. The mean shade temperature was 58.6°, the range being from 70° on the 8th to 48° on the 24th. In August, 1901, the M. T. was 60.5°, and in August, 1902, it was 58.7°.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 26 days to the amount of 3.735 inches, the greatest measurement in 24 hours being .840 inch on the 18th.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 2.870 inches on 27 days, compared with 3.520 inches on 16 days in August, 1902, 3.625 inches on 15 days in 1901, 5.995 inches on 16 days in 1900, 2.640 inches on 11 days in 1899, 3.185 inches on 18 days in 1898, 6.195 inches on 27 days in 1897, and 1.245 inches on 14 days in 1896. The heaviest fall in 24 hours was .610 inch on the 13th. The total fall since January 1 amounts to 23.100 inches on 134 days, compared with 23.161 inches on 111 days in 1902, 19.685 inches on 100 days in 1901, 29.326 inches on 136 days in 1900, 25.630 inches on 120 days in 1899, 17.830 inches on 112 days in 1898, 25.945 inches on 143 days in 1897, 14.327 inches on 91 days in 1896, and only 16.341 inches on 106 days in 1893.

Dr. B. H. Steede reports that at the National Hospital, Newcastle, Co. Wicklow, the rainfall was 3.171 inches on 24 days, compared with 4.084 inches on 14 days in August, 1902, 3.055 inches on 15 days in 1901, 3.988 inches on 12 days in 1900, 1.877 inches on 13 days in 1899, 3.803 inches on 16 days in 1898, and 4.526 inches on 20 days in 1897. The heaviest fall was .676 inch on the 13th. Since January 1, 1903, the rainfall at this Second Order Station has been 27.026 inches on 154 days, compared with 22.358 inches on 122 days in the first 8 months of 1902, 16.646 inches on 100 days in 1901, 24.144 inches on 130 days in 1900, 23.748 inches on 117 days in 1899, and 20.101 inches on 110 days in 1898. The maximal temperature in the shade was 67.2° on the 30th, and the minimum temperature was 45.0° on the 22nd.

At Cork the rainfall was 4.46 inches, or 0.97 inch above the average, the maximal fall in 24 hours being 0.84 inch on the 13th. There were 24 rainy days.

At the Railway Hotel, Recess, Connemara, Co. Galway, 11.157 inches of rain fell on 23 days in August. This large amount included 2.600 inches on the 14th, 1.130 inches on the 31st, 1.110 inches on the 30th, .940 inch on the 25th, .830 inch on the 2nd, and .730 inch on the 26th—that is 7.340 inches on 6 days.

Dr. J. Byrne Power, F. R. Met. Soc., Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 58.2°, being 2.7° below the average for August during the previous five years. The extremes were—highest, 71.5° on the 30th; lowest, 46.5° on the 24th. At Bournemouth the mean was 60.9°, the extremes being—highest, 74° on the 4th; lowest, 46° on the 23rd. The mean daily range of temperature at Kingstown was 13.3°, and at Bournemouth 15.2°. The mean temperature of the sea at Sandycove bathing-place was 56.8°, being 1.8° below the average for August during the previous five years. The rainfall was 2.30 inches on 20 days at Kingstown, and 2.60 inches on 14 days at Bournemouth. The total duration of bright sunshine was 144.3 hours at Kingstown, 173.3 hours at the Ordnance Survey Office, Phoenix Park; 134.8 hours at Parsonstown, 143.9 hours at Valentia, 184.6 hours at Southport, and 160.0 hours at Eastbourne.

MENINGITIS WITHOUT ANATOMICAL LESION.

It sometimes happens that patients die very acutely with all the symptoms of a severe meningitis, and yet only a slight exudate, and perhaps a moderate degree of swelling and hyperæmia of the brain is found *post mortem* to account for the condition. The case of Birnbaum (*Münch. med. Woch.*, July 21, 1903), is peculiar, however, in that the patient was ill for fifteen weeks, and that absolutely nothing was found *post mortem* in the meninges. Bacteriological examination, however, revealed the presence of meningococcus, and the cerebro-spinal fluid, withdrawn during life, showed a slight coagulum, which always is suspicious. The case must therefore be looked upon as one of meningeal sepsis without anatomical lesion. The cause was probably a gum-boil which had been incised with extraction of the diseased tooth, two days before the acute onset of the illness.—*Medical News*, N. Y., August 29, 1903.

In Memoriam.

HENRY GRAY CROLY, F.R.C.S.I., M.R.C.P.I., J.P.:

SENIOR SURGEON TO THE ROYAL CITY OF DUBLIN HOSPITAL ;
PAST PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

WITH deep regret the citizens and medical profession of Dublin learned on Friday, August 28th, of the unexpected death of HENRY GRAY CROLY, who for so many years had been a well-known figure in the social and professional life of the Irish metropolis. The sad event occurred suddenly, from apoplexy, early on the morning of that day at the residence of his brother, Mr. Albert Croly, M.R.C.P.I., J.P., Silveracre, Rathfarnham, Co. Dublin, to whom he had gone on a visit from his house, No. 7 Merrion-square, North, Dublin. The eldest son of the late Dr. Henry Croly, J.P., of Rathfarnham, a physician and surgeon of repute, for many years Examiner in Midwifery, Royal College of Surgeons in Ireland, HENRY GRAY CROLY elected at an early age to follow in his father's footsteps. He did so with conspicuous success. As a medical student he won the "Purser" studentship at the City of Dublin Hospital, and on the outbreak of the Crimean War he was appointed a surgical dresser in the Navy, serving as Assistant Surgeon on board H.M.S. "Hawke" in the Baltic. He was present at the naval action off Riga, for which he obtained the Baltic medal. In after years on many a festive occasion he responded with pride and pleasure to the toast of H.M. Navy.

In 1856, on his return to Dublin, young CROLY obtained the License of the Royal College of Surgeons in Ireland. Shortly afterwards he served as House Surgeon to the City of Dublin Hospital. In 1860 he took the License in Medicine of the King and Queen's College of Physicians, becoming a member of the Royal College of Physicians of Ireland, as that Corporate Body is now called, in 1881. He had obtained the Fellowship of the Royal College of Surgeons in Ireland in 1863.

At an early stage of his professional career, MR. CROLY had attached himself as Demonstrator of Surgical Anatomy

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and Teacher of Operative Surgery to the School of the Royal College of Surgeons. Here he proved himself to be a capable teacher, and laboured on for sixteen years, when increasing practice obliged him to sever his connection with the school. For some time MR. CROLY acted as Medical Officer of the Meath-street Dispensary District of South Dublin, and in after life he often recalled the valuable experience he there gained in medical as well as in surgical practice

Chosen Surgeon to his old Hospital, CROLY threw himself with characteristic ardour into his work as a clinical teacher and operator. He soon made a name for himself as a skilful and fearless surgeon. It is interesting to note that he was ambidextrous, and was able to write and even to operate with his left hand in the most surprising and skilful manner. His advice was often sought. He commanded the earnest attention of large classes of students, and contributed largely to the current literature of surgery, many of his best papers appearing from time to time in the pages of this journal.

We extract from Churchill's Medical Directory for 1903 a list of his communications as follows:—

"Cellulitis of Neck (lines of safety and lines of danger);"
"Glossitis;" "Scalds of Larynx;" "Amputations (Teale's);"
"Excision of the Jaws;" "Hernia Taxis and Radical Cure;"
"Ligature of Lingual Arteries preceding Tongue Excision;"
"Ununited Fractures;" "Sarcoma of Tonsils;"
"Colotomy (18 consecutive successful cases);"
"Compound Luxations of Ankle;" "Lithotomy (case in which 33 Calculi were Removed—Recovery);"
"The Radical Cure of Piles;" "Dislocation of Femur on Pubis Reduced by Manipulation—42 days' standing;"
"Successful Ligation of Left Subclavian Artery in the Second Part of its Course;"
"Para-sacrococcygeal Excision of Rectum—Splenectomy;"
"Gastrostomy for Cicatricial Stricture of the Oesophagus (successful);"
"Traumatic Tetanus;"
"Luxations and Fractures of the Astragalus—Circumscribed Abscess in Bone (Brodie's);"
"Urinary Infiltration;"
"Successful Ligation of External Iliac Artery for Ilio-Femoral Aneurysm" (new operation).

The Royal College of Surgeons in Ireland recognised CROLY's worth by appointing him one of the Examiners

In Memoriam.

in Surgery, and afterwards by electing him in turn a Member of Council and finally (in 1890) its President. His Presidency was made notable by the fact of his re-election to the Chair at the termination of his year of office—he was the “first biennial President,” as he used to phrase it with perhaps pardonable pride. He was also Consulting Surgeon to Monkstown Hospital and Honorary Surgeon to the Masonic Orphan School for Boys.

In due course CROLY became Senior Surgeon to his Hospital, and in this capacity he played a prominent part on the occasion of Queen Victoria's memorable visit to Dublin in the spring of 1900, when the title of the Royal City of Dublin Hospital was granted by Her Majesty to the institution he loved so well. In the present year also, he presented an address from the Hospital to His Majesty King Edward VII. during the Royal Visit to Dublin in July.

Like all men of strong individuality, HENRY GRAY CROLY had the misfortune from time to time to run counter to the opinions of others and so to incur a certain amount of unpopularity, but all looked upon him as an able and resourceful surgeon, and to be so considered was ever his ambition.

The subject of our Memoir was passionately fond of horses, and “CROLY's high-steppers” were familiar objects in the streets of Dublin. He was a frequent and successful exhibitor at the world-renowned annual Horse Shows of the Royal Dublin Society.

Two years ago MR. CROLY had the misfortune to lose his wife, but the closing days of his busy and active life were brightened by the success of his sons, two of whom had chosen their father's profession. The eldest, Dr. Henry Croly, B.A., M.D., Univ. Dubl., is Visiting Surgeon and Lecturer on Clinical and Operative Surgery to Mercer's Hospital. Another, William Chapman Croly, is a Captain in the Royal Army Medical Corps. Mr. A. E. J. Croly, the youngest son, is a Sub-Lieutenant in the Royal Irish Fusiliers, now serving in India.

At the time of his death MR. CROLY was about 67 years of age, and to all appearances had many useful years before him.

J. W. M.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XII.—*Enteric Fever and some of its Complications.*^a

By LAWRENCE F. M'DOWELL, B.A., M.B., M.D., Univ. Dubl.; Assistant District Surgeon, Omts Lovell, Cape Colony.

HAVING recently had 300 cases of typhoid fever under my care in general practice (and not in hospital), with absolutely no nursing in the true sense of the word, I have taken this disease as the subject of my thesis, not so much to throw new light on the treatment, as rather to bring forward some of the more interesting complications and my method of meeting them, and also to point out my own experience of treating one of the most frequent and interesting diseases we South African general practitioners have to combat.

The form of typhoid resembles closely that met with at home, except that pyrexia is decidedly higher—105° being frequent and 104° quite common; I have frequently seen patients quite rational and not in the least delirious with a temperature of 105°.

I have found the treatment of this disease in this country by medical men, coming from almost every school, so vastly different, that I shall first briefly mention my method in a straight-forward case, and the modifications I adopt in com-

^a Being a Thesis read for the Degree of Doctor of Medicine of the University of Dublin, June, 1903.

plications. The patient is confined to bed in a well-ventilated room, if this can be obtained, but as often windows are hermetically sealed, and the Dutchman dreads fresh air, this is seldom obtainable. I order the patient to be undressed. I find this a necessary point to mention, as I have frequently been called to desperate cases and found the patient fully dressed, minus his hat and boots. I insist on the patients lying mostly on their sides, as I have more than once noticed that continual lying on the back—especially in more advanced cases—leads to more rapid development of hypostatic congestion of the lungs. Special care is taken to avoid bedsores. I vastly prefer that the patient should use a bedpan rather than that he should get out of bed; for if the patient becomes early accustomed to its use, I have no hesitation in saying that when he is beginning to get exhausted, as the disease progresses, the use of a bedpan is far less trying than getting up in bed. Sponging to reduce pyrexia, which undoubtedly is the method *par excellence*, I find impossible in my practice, as our Dutch population will not carry it out properly, and so I have had to use antipyretics—namely, antikamnia, antipyrin, phenacetin, and antifebrin.

Antikamnia I have found by far the most useful, in gr. iv. to gr. v., for an adult every three or four hours, as required; it reduces the temperature from 2° to 3° with no heart depression, and if given with a small quantity of brandy is most satisfactory.

Antifebrin, on the other hand, I have found very depressing, and in one adult a dose of gr. iv. caused a drop of 7.5° with alarming collapse, and only with considerable stimulation did the patient rally.

If there is no diarrhoea I give milk unboiled, bovril, or some other meat extract, and yolk of egg beaten up with milk. These I order in small quantities every two hours, or in very severe cases every hour. I prescribe stimulants, and brandy by preference, but only when called for and when the tongue has a tendency to lose its moistness. I then give from ʒiv. to ʒxii. in 24 hours in ʒss doses, as the severity of the case demands. I always give it with milk or some other nourishment, and not with water.

Water I allow to the amount of half a pint to one pint in 24 hours, and have found a little citric acid of great

assistance in relieving thirst and sweetening the taste in the mouth.

I have tried most medicines recommended, and find them one and all of very little use as far as aborting the course of the disease goes. Symptomatic treatment is by far the most satisfactory to the patient. I now invariably in the earlier stages of the disease give a dilute hydrochloric acid mixture, and as the case progresses give an effervescing mixture of—

R.	Quin. sulph.,	-	gr. 32,	
	Acid. citric.,	-	gr. 160,	
	Aquæ,	-	ad ʒiv.	M.
And—	R. Ammon. carb.	-	gr. 80,	
	Tr. senegæ,	-	m. 160,	
	Sodii bicarb.,	-	gr. 160,	
	Tr. digitalis	-	m. 80,	
	Aquæ,	-	ad ʒviii.	M.

ʒii. of the acid mixed with ʒss of the alkali, and ʒss of water in effervescence every three or four hours.

And, if a heart tonic is required, I give

R.	Tr. strophanthi,	-	m. 160,
	Liq. strychninæ,	-	m. 80,
	Aquæ,	-	ad ʒii.
	ʒi. quâque horâ, cum aquæ semiunciâ.		

I have found in far the greater number of cases of deaths that heart failure, with lung trouble, is the *bête noire* in this disease, and not diarrhœa or intestinal trouble, which, I think, with peptonised milk and great care in dieting can, to a great extent, be moderated.

If *cough* is troublesome I give some simple mixture, containing compound tincture of camphor, ipecacuanha wine, spirit of chloroform, and syrup of ginger.

For *intense headache* and pains through the body, which in this country are often very marked in the earlier stages, the following prescription I have always found give prompt relief :—

R.	Sodii salicylatis,	-	gr. 10,
	Potassii nitratis,	-	gr. 10,
	Tr. gelsemii,	-	m. 5,
	Aquæ ad ʒss q. h.		

If *constipation* is complained of, hydrarg. subchlor. gr. 5, or ol. ricini in earlier stages, is ordered, but as the case progresses I use enemata solely.

Hæmorrhage from the bowels occurred in 2.6 per cent. of my cases, and in every one of these cases, with one exception, it was of an alarming nature. I have always prescribed—

R. Tr. camph. co., - m. 30,
 Acid. sulph. arom.. m. 10 vel 20,
 Spt. chloroformi, - m. 10,
 Syr. zingib. - m. 60,
 Decoc. hæmatoxyli, ad 3ss.

This dose should be repeated after every motion, diminishing the amount as soon as hæmorrhage seems to be controlled. In one case of torrential hæmorrhage I first ordered a good dose of liquor opii sedativus and backed it up with the foregoing prescription, and stopped all motions for seven days. All the patients recovered except one—a woman, 10 miles away, who was moribund when I first saw her. In all cases of hæmorrhage I stop all beef-tea, broths, meat essences, and merely give peptonised milk; I also diminish the quantity of stimulants unless absolutely necessary. I order the patient to be moved as little as possible.

Epistaxis of an alarming nature I have met twice in enteric fever, and in both instances I ordered tincture of the perchloride of iron, chlorate of potassium and strychnin in large doses, which stopped the hæmorrhage.

An anæmic girl of seventeen years, however, who was exhausted when I arrived, although bleeding did not occur, rapidly sank. Possibly in her case transfusion of normal saline solution might have led to recovery, but I had no apparatus. Should I, however, meet such a case again, I would have recourse to its use.

Another interesting, but very troublesome, complication I have occasionally had to deal with is *persistent vomiting*. In these cases when not severe I order peptonised milk in small quantities, or equal parts of milk and barley-water. I have found that beaten-up yolk of egg and beef-tea do not agree, while white of egg beaten up with milk is often retained. I order a mustard leaf to the epigastrium, and a bottle of

"Hudson's white mixture" in half-ounce doses every four hours. The formula is—

R. Bismuth. subnit.,	-	gr. 7½,
Potassii nitratis,	-	gr. 2,
Liq. morphin. hydrochlor.,	m.	7½,
Acid. hydrocyan. dil.,	-	m. 2½,
Pulv. tragacanth. co.,	-	gr. 8,
Aquæ,	-	ad 3ss.

The first dose to be preceded by half a teaspoonful of dilute hydrochloric acid.

In the majority of cases this gives most encouraging results, but not always, and in this latter class, where nothing is retained, I rely entirely on nutritive enemata, and the mixture is tried at intervals to test irritability of the stomach. With this line of treatment even the very worst cases have been quickly relieved.

Diarrhæa is often troublesome, and I meet it by stopping nitrogenous nourishment, peptonising all milk, and by giving one of the following prescriptions according to the severity of the case:—

Or—	R. Tr. camph. co.,	-	m. 30,
	Ac. sulph. arom.,	-	m. 15,
	Spt. chloroformi,	-	m. 10,
	Aquæ,	-	ad 3ss,
	R. Bismuth. carb.,	-	gr. 10,
	Sodii bicarb.,	-	gr. 5,
	Pulv. cret. arom.,	-	gr. 20,
	Tr. opii,	-	m. 5,
	Spt. chloroformi,	-	m. 10,
	Sodii salicylatis,		
	Pulv. trag. co.,	-	āā gr. 10,
	Aquæ,	-	ad 3i.

A most important point to observe is the *character of the motions*, for a patient may be taking plenty of nourishment but every day be rapidly losing ground, and in all these cases it will be noticed that the motions are full of small particles of undigested milk. This is a clear sign that pepsin is required, and if milk be peptonised results are often little short of wonderful. I hold that the milk should be peptonised from the beginning, for enteric being essentially a disease of the

intestines their digestive powers must be greatly diminished, and any assistance we can give should not be withheld.

A far harder foe to meet than diarrhoea is *severe meteorism*, which is in some cases very troublesome, and I can only say I know of nothing that is of much use. Dieting and keeping the stomach regular, to a certain extent alleviate it, but in many cases these measures have no effect. I have been advised to use solution of the perchloride of mercury and compound tincture of bark, but have found the combination useless, as also turpentine fomentations and insertion of the long India-rubber tube. These measures may give a few minutes relief but nothing more. To me meteorism is a serious sign, and often precedes perforation or hæmorrhage.

Acute cystitis is a complication with which I have met in two children; strangury was intense and free hæmaturia. I treated both these cases with large doses of sodium salicylate, which in a few hours gave the most satisfactory, and I may say unlooked for, results. Warm fomentations with tr. opii were applied at the same time over the bladder and sacrum.

Retention of urine has in five cases (three males and two females) been a troublesome complication, and has required catheterisation for from two to eight days. For this complication, too, I know of nothing that is of the slightest use to tone up the bladder.

I come now to what I consider by far the most serious complication of enteric—namely, *heart failure*. When one has anxiously watched and done one's utmost, one reluctantly sees that the patient is "going down hill." His pulse is soft and almost running, his breathing is rapid, and moist râles are heard at back and front of the chest; his tongue is dry and cracked; his whole appearance is apathetic; his fingers pick at the bed-clothes, and he lies low in bed. I say, however, that in enteric there is always a hope that the most desperate cases may recover. I remember one adult, twenty-four years old, who relapsed. He became desperately ill. He had well-marked Cheyne-Stokes' respiration, and an almost imperceptible pulse, temperature 105° , and was so weak that I had absolutely no hope for him. He, however, rallied, and made a most satisfactory recovery when I had been

momentarily expecting the end. Now it often happens to us South African doctors that we are called miles into the country to such a case, and the patient appears at his lowest.

In these cases where there is no hæmorrhage or excessive diarrhœa I order peptonised milk, two ounces every hour (and sips of water in between, if thirsty). Milk I give with half an ounce of the best French brandy, and every third hour, in place of milk, I give the same quantity of bovril, and every eight hours the yolk of an egg beaten up with milk. Half a cup of black coffee, the yolk of an egg, and half an ounce of brandy once or twice daily are one of the best heart tonics and restoratives I know of.

In these cases where the heart shows signs of flagging and the lungs are getting water-logged, I have found nothing to compare with the effervescing quinine mixture before mentioned. The combination seems almost an ideal one, and Tr. strophanthi m. 10, liquor. strychninæ m. 5, every four hours, together with the amount of stimulants given, seem to brace the heart to new life, bring out its latent force, and tide the patient over the desperate straits he had reached. A mustard plaster to the heart and warmth to the extremities, and, if the case seems *in extremis*, hypodermic injections of 5 minims of solution of strychnin every two, three, or four hours, instead of the "heart mixture," until the heart responds to stimulation are invaluable remedies.

Champagne I have used in these cases, but cannot say that I have found it superior to good brandy. If hypostatic congestion of lungs is well marked, I have tried warmth with a stimulating liniment; but I feel that any good results have depended more on the renewed heart-vigour than to local effect of application.

ART. XIII.—*Malarial Fever as met with in South Africa during the late War : its Symptoms, Treatment, and Prevention.** By ARTHUR HAMILTON STEWART ROBERTS, M.D., B.Ch. Univ. Dubl.

It was my fortune during the late war to be stationed at Komati Poort, one of the most unhealthy districts in South Africa, where malarial fever forms the great obstacle to European settlements. Here the telluric conditions were eminently favourable for the development of the malarial poison. It is a badly-drained, low-lying district, rich in vegetable matter, through which runs the course of the old Crocodile river-bed. The so-called malarial season is divided into well-marked maximal and minimal periods, the latter corresponding to the months of May, June, July, and November, December, January, and the former to February, March, April, and August, September, October. The local inhabitants state that malarial fever is most prevalent after a very hot summer and during the rainy season.

The types of malarial fever which I observed at Komati Poort were all of the tertian or quartan variety, and, fortunately, no case of a pernicious type occurred. In these types, as a rule, chill, fever, and sweat followed each other in orderly sequence. The patient generally knew that he was going to have an attack a few hours before it arrived by a general feeling of malaise, often accompanied by headache.

The cold stage commences by headache, nausea, and vomiting. This is gradually followed by shivering, until at length the rigor becomes fully developed, the teeth chatter, and the whole body shakes. The patient looks cold, but while the surface temperature is reduced the temperature in the axilla may be greatly increased, and may rise to 104° or 105°. The pulse is rapid, hard, and small. This stage lasts from ten minutes to an hour or longer.

The hot stage commences with flushes of heat, and the skin becomes intensely hot. The face is flushed, the skin reddened, and the pulse full and bounding. There is sometimes delirium. The patient suffers from intense thirst. This stage lasts from half an hour to three or four hours.

* Being a Thesis read for the Degree of Doctor of Medicine of the University of Dublin, June, 1903.

The sweating stage varies much. The entire body may be bathed in perspiration, or it may be very slight. The headache and feeling of malaise disappear, and within a short time the paroxysm is over.

The total length of the paroxysm varies from ten to twelve hours, but is sometimes much shorter.

Many of my patients had repeated attacks of malarial fever, and this was followed, after several months, by the symptoms of chronic malarial poisoning. The malarial cachexia presented two striking features—namely, anæmia and enlarged spleen. The symptoms are those of ordinary anæmia, breathlessness on exertion, œdema of ankles, and hæmorrhages, particularly into the retina. They present the typical symptoms of splenic anæmia.

Treatment.—Each man was provided with a mosquito net, as infection seems most liable to occur at night, and ten grains of bisulphate of quinine were administered daily to each man as a prophylactic. During the paroxysm the patient was, in the cold stage, wrapped in blankets, given a purgative, followed by hot drinks, and the following prescription administered :—

R. Antipyrin.	-	-	- 3ij.
Spt. ammon. aromat.	-	-	- 3ij.
Aquæ chloroformi ad.	-	-	- ʒviii.
Ft. mist.			M.

Two tablespoonfuls to be given every four hours until the paroxysm is over.

This relieves the intense headache and backache, beads of perspiration appear upon the face, and gradually the whole body is bathed in a copious sweat, and the patient usually sinks into a refreshing sleep. At the expiration of the paroxysm the administration of twenty to thirty grains of bisulphate of quinine daily for the first three days, and then continued in smaller doses for the next two or three weeks, in many instances prevented fresh paroxysms.

In cases of chronic malaria, where the malarial cachexia was well established, I found that arsenic given in gradually increasing doses gave surprisingly good results, and that with careful treatment the majority of the cases recovered. The spleen was gradually reduced in size, but in many cases this enlargement would take years to completely disappear.

All the water for drinking purposes was boiled, and stored in mosquito proof tanks. The surrounding jungle was cleared away as much as possible, and the ground drained. The huts for the men were built at the highest possible level, and were elevated some distance above the ground, as the fact that the distribution of the poison of malaria is influenced by gravity has long been conceded. These endeavours to improve the sanitary conditions of Komati Poort were continued by my successors. The numerous shallow pools which exist on each side of the bed of the old Crocodile River, and which formed breeding grounds for the mosquito, were flooded with petroleum. The gradual clearance of the thick jungle was persevered with, and by these means it is hoped to render the most unhealthy district in South Africa fit for the inhabitation of Europeans.

ART. XIV.—*Examination of the Blood as an Aid to Diagnosis.*^a By O'DONEL H. DODWELL BROWNE, M.D.,
B.A. Univ. Dubl.

In all branches of the medical profession we find men taking up one special subject and devoting their whole time and skill to it. By this means they gain a very accurate and full knowledge of that subject, and can prove themselves a great help to all needing their aid. There are many men whose sole occupation it is to examine blood; and by subjecting the blood to certain tests, both physical and chemical, they are able to make a definite diagnosis of many diseases to which the human body is heir. Of all the means at their disposal for this pursuit the microscope seems to be their best appliance; nor is a thorough examination deemed to be satisfactory until the blood in some way or other be subjected to this crucial test.

With the aid of the microscope not only can the examiner tell in what way the examined blood differs from what is considered normal, but he can tell how far below or above the normal it differs, and after several such examinations can fairly accurately determine how the patient progresses.

^a Being a Thesis read for the Degree of Doctor of Medicine of the University of Dublin, June, 1913.

Take, for instance, the condition of a patient suffering from "anæmia." Sometimes the number of corpuscles is below the normal, whilst in another case the percentage of the hæmoglobin may be at fault. Supposing any difficulty should arise as to which of these is at fault, the microscope will materially aid in giving the examiner a true insight as to which is the cause of trouble. Thus in chlorosis the percentage of the corpuscles may be approximately up to the normal, but each corpuscle, individually, contains a less quantity of the essential hæmoglobin than it normally should have, and hence arises the evil. Again, by the aid of the microscope the red blood cells are seen to be on the whole smaller than usual. Some of them are very small, and to these the name of *microcytes* is given; a few are large (*macrocytes*); whilst others, with an irregular outline, are occasionally found (*poikilocytes*).

Take, again, as another example—where the blood is examined in a case of "pernicious anæmia," no less than two important points are solved by the use of the microscope, these two points being peculiar to pernicious anæmia and absent in chlorosis. The *first* and most marked feature in pernicious anæmia is the diminution of the red cells. Thus, although the total amount of hæmoglobin is invariably diminished, yet the amount contained in each corpuscle may be even in excess of the normal. The *second* difference is the change in size and shape of the cells. Sometimes there are found enormous nucleated red blood corpuscles, to which the name of *megaloblasts* is given. The poikilocytes are far more numerous than in chlorosis, and they have a characteristic appearance. They are pear-shaped, granular, and are, in addition, highly pigmented. The tendency also which the normal red cells have of forming into rouleaux is greatly diminished, and the blood does not coagulate so quickly when placed on the cover-glass. Nucleated red blood cells are also found in this condition. Firstly, there is the ordinary form, which is of the same size as the common corpuscle, having a small, deeply staining nucleus (normoblast); and secondly, there are very large corpuscles with a palely staining nucleus; this latter corpuscle is called a *gigantoblast*, and somewhat resembles the megalocyte. Though these are always found

in the grave pernicious anæmia, they must not be held up as a definite diagnosis of this disease, as they are sometimes found associated with grave secondary anæmia (*bothriocephal-anæmia*), and also in *leucæmia*. Cell division in its different stages may be made out in these bodies sometimes. Another point may aid in differential diagnosis (should it be necessary) between pernicious anæmia and Hodgkins' disease, as in the latter there is no poikilocytosis.

Passing now from the red cells to a study of the white cells we find that in certain diseases the latter are at fault. Sometimes there is a slight increase, which cannot be called pathological leucocytosis. Here again by the aid of the microscope this different condition to leucocythæmia can be differentially made out, seeing that the increase of white cells in the former is limited to the multinucleated leucocytes.

The different forms of leucocythæmia are differentially recognised by a blood examination. In the form known as *spleno-medullary* the excess of white cells is made up of the following :—

Firstly.—The *myelocyte*, which is a large uninucleated neutrophile cell. The myelocytes appear to come from the bone marrow. They are considerably larger than the kind known as the large mononuclear leucocyte, and in some points are like them; but they differ in the fact that their protoplasm is filled with a granular substance which has the power of staining with acid and alkaline dyes.

Secondly.—The *multi-nucleated leucocyte*.

Thirdly.—The *large uninucleated eosinophile cells*.

Fourthly.—*Leucocytes with coarse granules, whose peculiar power is to stain with the dye methylene-blue.*

In the *lymphatic* form the chief increase of the white cells is due almost entirely to cells called *lymphocytes*. Eosinophile corpuscles are rarely found, and myelocytes are not found.

The different diseases in which there is the condition known as *leucocytosis* are many and varied. By the microscope's aid one can often tell fairly clearly if certain pathological conditions exist when the ordinary examination cannot definitely settle the point.

It is well marked in *pneumonia*, *diphtheria*, and in *inflammations attended by the formation of pus*. It is also

frequently present in *pertussis*, *scarlet fever*, *erysipelas*, *acute rheumatism*, and in the different forms of *meningitis* and of *purulent inflammations*. It is an important point in *appendicitis*, *peritonitis*, *empyema*, *pyæmia*, *septicæmia*, and all *acute abscesses*. In these conditions the increase is seen to be almost wholly due to the multinuclear neutrophile corpuscle.

Leucocytosis is absent in *typhoid*, *influenza*, and in *tubercular inflammations*. In *meningitis* leucocytosis is generally present in both the septic and cerebro-spinal forms of this complaint, whereas in the *tubercular variety* it is markedly absent.

By some, leucocytosis is held to be constant in *pertussis*. It is usually highest in the early part of the convulsive stage. The value of this symptom for diagnosis is increased by the fact that leucocytosis is not present in those conditions with which *pertussis* is most likely to be confounded. Thus in *appendicitis* a very marked leucocytosis serves to distinguish *purulent* from *catarrhal appendicitis*, and also, at the same time, leads one to a diagnosis of abscess formation.

In *pneumonia* the increase commences shortly after the onset and continues during the stage of exudation, and declines rapidly after the crisis. A well-marked leucocytosis is of use in differentiating *pneumonia* from *typhoid*, *tuberculosis*, in *fluëza* and *bronchitis*.

In a case with increased leucocytosis in an active pneumonia, in the absence of any physical signs, the leucocytosis points generally to all empyema.

The prognostic value of leucocytosis depends on the individual's resisting powers, and the higher the leucocyte count, the better, as a rule, the prognosis will be.

DEATH OF JAMES ROBERT WALLACE, M.D., F.R.C.S.I.

WE learn with much regret of the death, at Calcutta, on the night of Sunday, September 27, of this esteemed member of the Profession, who was Editor of the *Indian Medical Record*. He had a severe attack of pleurisy last spring, and subsequently came home for change of air and rest. He never recovered his health, and at last returned to India, where he arrived on September 4, in a very weak condition, from which he did not rally.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Hypnotism : Its History, Practice and Theory. By J. MILNE BRAMWELL, M.B., C.M. London : Grant Richards. 1903. Pp. 478.

THE author of this work has, we are told, devoted the last twelve years to hypnotic practice and research, and, convinced of the great therapeutic value of hypnotism, desires to draw the attention of medical men to the subject. As he thinks that this is still insufficiently dealt with in English medical literature, he aims in the present volume at giving not only the results of his own work, but also such a general account of the subject as can be brought within reasonable compass. The book is divided into fifteen chapters and two appendices. Although we are far from looking on hypnotism as such a valuable curative agent as it is represented to be by Dr. Bramwell, yet we can cordially recommend his book to all those who take an interest in psychological subjects. It is pleasantly and clearly written, contains the results of much research, and the writer evidently endeavours to avoid exaggeration of every kind and to put his case forward as fairly as he can.

In his historical sketch he dwells at some length on the works of Elliotson, Esdaile and Braid, because this has, to a large extent, been forgotten or passed over by other writers, while Mesmer and his school have received full justice in other works, and are consequently allotted shorter space.

In the chapter on the methods of inducing and terminating hypnotism all that anyone who wishes to embark on this kind of practice can need will be found. While the methods are classified into physical, psychical, and those of the magnetisers, it is pointed out that modern hypnotisers adopt a combination of methods which makes classification almost impossible. It is considered doubtful whether physical methods have ever succeeded where mental influences have

been excluded. "On the other hand, any physical method will succeed with a susceptible subject who knows what is expected of him."

As regards this susceptibility, the author finds as a general rule that "the nervous, ill-balanced and hysterical are the most difficult to influence; and that healthy people who possess the power of concentrating their attention are the easiest." The inhabitants of Goole, where Dr. Bramwell practises, seem to be particularly susceptible.

A long chapter is devoted to the experimental phenomena of hypnosis. The author has never been able to produce blisters by suggestion, nor has he ever been able to succeed in changing the temperature of the skin in hypnosis, and believes that in the cases in which these phenomena are stated to have occurred, fraud or mal-observation has not been eliminated; and yet these phenomena are gravely reported on what is considered for hypnotic matters good authority. Scarcely less remarkable are many of the observations of the author—for instance, a girl who had no particular aptitude for appreciating the passage of time. "Exp. 1.—Nov. 5, 1895; time, 4 p.m.; suggestion giving (*sic*) during hypnosis; at the expiration of 5h. and 20m. Miss D. was to make a cross on a piece of paper, and write down the time she believed it to be without looking at clock or watch. Result: The suggestion was carried out the minute it fell due." Fifty-five similar experiments of this kind are recorded, forty-five of which were perfectly, and eight partially, successful—the suggestions being carried out sometimes in the waking state, sometimes in hypnosis, and sometimes in natural sleep. It is reassuring to find the author expressing his disbelief in telepathy, clairvoyance, and the so-called occult phenomena.

In dealing with the management of hypnotic experiments several very judicious rules are laid down. If they were thoroughly observed in all cases we cannot but believe that the phenomena of hypnotism would contract themselves within narrower limits than they now occupy.

It is believed that the phenomena described as hypnotism in animals are different from those seen in human beings, and are cataleptic rather than hypnotic.

In the chapters on the employment of hypnotism in surgery and medicine we have a long array of cases in which operations of the most painful description were performed, without suffering, on patients in the hypnotic state, and all kinds of medical diseases benefited or cured by hypnotism. Most of these diseases were of a nervous character, but they vary a great deal from lying and biting the nails to eczema.

The most interesting and the longest chapter is that on hypnotic theories. The more important of these are stated clearly, and criticised with much ability. They are all admitted to be more or less unsatisfactory, but most favour seems to be shown for the secondary or subliminal consciousness theory. This is the theory of double consciousness which rests on the principle "that in certain persons, at least, the total possible consciousness may be split into parts which co-exist, but mutually ignore each other." Numerous astounding examples are given of these conditions of double consciousness, which are scarcely less strange than the strange case of Dr. Jekyll and Mr. Hyde—where a person in state A remembers all that occurred when he was in this state, but is quite oblivious of what occurred when he was in state B, while when in state B the contrary is the case. In some persons there are several such conditions. Thus we have Miss X. in three conditions :—

"1. Miss X. of ordinary waking life, who is reserved, morbidly conscious, self-contained, serious, deferential and dignified.

"2. Miss X. of the primary hypnotic condition, who is sad, serious, and apparently weak and suffering.

"3. Miss X. of the secondary or deeper hypnotic state, who is flippant and jovial, free from all physical infirmities, full of fun and reckless.

"1 can remember the events of waking life alone and knows nothing of 2 and 3.

"2 remembers all that has passed in previous primary hypnotic states, and also all that 1 can recall, and in addition some other events of waking life which 1 has forgotten.

"3 remembers all the events of the secondary or deeper hypnotic stages, as well as everything 1 and 2 can recall. In addition she can describe incidents in the past life of 1 that are lost to the memory of the latter, and can thus explain

much that the waking personality is at a loss to account for. She knows all about many of the little absent-minded doings of 1; and does not hesitate to voluntarily tell of them, although 1 is morbidly and unnecessarily reserved about her whole life."

But this is nothing to another young woman who existed in fifteen different conditions.

Dr. Bramwell is very strong in his opinion that hypnotism, when carefully carried out by competent operators, is absolutely devoid of danger to the subject. He further urges that as suggestions can be as easily resisted in the hypnotic as in the waking state, there is no danger of crimes being committed by persons in the former condition under the influence of suggestion.

We can only repeat, in conclusion, that while there is much in this book concerning which we have grave doubts, the work is one of great merit and full of interest. It gives a considerable list of references to the works of other writers on hypnotism, and has an exceedingly good index. The volume is well printed and brought out.

Gynæcology: A Text-book for Students and a Guide for Practitioners. By WILLIAM PRIOR, M.D.; Professor of Gynæcology in the New York Polyclinic Medical School; Attending Gynæcologist New York Polyclinic Hospital; &c., &c. New York and London: Appleton & Co. 1903. Pp. xvi and 380. With 163 Illustrations in the Text.

DR. PRIOR'S writings are always interesting, and the present work is no exception. It is eminently the work of a practical man, with plenty of experience, and—that excellent possession—full confidence in himself. Further, its language is lucid and crisp, and though it is at times marred by solecisms of grammar or the latest American addition to the English language, it is still always intelligible and interesting. Dr. Prior has aimed at producing a work which will be of use to students and general practitioners, and which will confine itself strictly to gynæcological subjects, and we consider that he has succeeded in the task he has set himself. The book is essentially modern in every respect, and no regard or reverence for old procedures or teachings because of their age

has been sufficient to lead him to include them. In this rigid rejection we entirely sympathise with him. In a large text-book or work of reference, former procedures and teachings are worthy of a place, in so far as they enable the student to follow the evolution of modern methods; but in a hand-book of the class of the work before us there is necessarily no room for such. It is true that Dr. Prior terms his work a "text-book," but this is just one of those American innovations to which we have already referred. A book of some 350 pages of large type, plentifully illustrated, can scarcely be termed as a "text-book" consistently with the correct use of that term.

Amongst the subjects which are especially well treated may be mentioned displacements of the uterus, the performance of abdominal coeliotomy, and the post-operative management of patients. We are not surprised to learn that Dr. Prior does not regard vaginal hysterectomy as a very valuable operation in cancer of the cervix, but we are not altogether prepared to assent to his view that if a sweeping abdominal operation cannot be performed, a better ultimate result with less immediate risk will be obtained by high amputation of the cervix than by vaginal hysterectomy.

Dr. Prior's work will afford much food for thought and information not alone to the general practitioner, but to the specialist, and we are confident that it will meet with the success it deserves.

Serum Therapy, Bacterial Therapeutics, and Vaccines. By R. T. HEWLETT, M.D., M.R.C.P., D.P.H.; Professor of Pathology and Bacteriology, King's College, London, &c. London: Churchill. 1903. Pp. viii + 262.

THE best way to give an idea of the scope of this little book is to follow the author's arrangement of the subject-matter, and the best way to review it is to point out *en passant* what appear to be special merits or defects in his presentment. The first 36 pages are given up to general considerations on immunity, Ehrlich's side-chain theory, anti-toxin formation, anti-microbial serums, and hæmatolysis. They constitute, in our opinion, the weakest feature of the book. Lucidity is not

the author's *forte*, and the somewhat complicated character of the subject overtakes his stock of that quality. As early as page 4 this fact becomes apparent. Take his explanation of immunity. "Immunity is, briefly, insusceptibility to disease, generally to an infective disease. An infective disease is one which is caused by a living *materies morbi* or micro-organism, and is capable of being transmitted from one individual to another; it is an infection in contradistinction to an intoxication in which the agent that causes the disease is a chemical substance which is the product of the activity of a living organism or cell." Where, we may ask, would diphtheria come in under this arrangement? It possesses the two qualifications of an "infective disease"—viz., causation by a micro-organism and transmissibility; and it likewise possesses the qualification of an "intoxication"—viz., "the agent which produces the disease is a chemical substance which is the product of the activity of a living organism." The qualifications or characters assigned by Dr. Hewlett to infective and toxic diseases do not mutually exclude each other, and, therefore, the words "in contradistinction," which he uses, do not apply. The result is obscurity. On the next page we find it stated that "the black man is comparatively insusceptible to malaria and yellow fever, the result probably of the action of natural selection." Is not this insusceptibility rather the result of attacks in infancy?

On page 17 we find an exposition of the "toxic action of toxin upon bioplasm," in the course of which, in addition to a haptophore group or receptor on the cell, anchoring on the homonymous group of the toxin molecule, we find a so-called "toxophile group" described and depicted as sprouting from the cell. With this "toxophile" group the toxophore group of the toxin is supposed by the author to unite, thus forming a *double* connection between toxin and cell. This double connection is depicted in Fig. 3, and we consider it to be a needless complication, and, what is worse, a total misconception of Ehrlich's view, according to which the receptors intended to anchor on nutrition-granules or groups may come to be occupied by accidentally adaptable toxin molecules, but which entirely denies the presence of any special "toxophile" groups, the existence of which being

antagonistic to the survival of the cell, would be inapplicable on the hypothesis of natural selection.

Dr. Hewlett is much more "at home" when dealing with the practical work of preparing, standardising, and administering the several anti-serums. His account of the anti-toxins of tetanus, diphtheria and snake-poison is in every way excellent, and so is his description of the chief anti-microbial serums—those that antagonise the streptococcus, pneumococcus, bacillus of plague and of typhoid. Then follows an account of transfusion of animal blood and saline solution.

Chapter VII. deals at some length with the several kinds of tuberculin, and also with mallein. The therapeutic and diagnostic properties of these bacterial extracts are fully gone into, and the dosage explicitly described.

Chapter VIII., on the methods of producing active immunity, leaves a great deal to be desired, and shows obvious signs of haste and hurry. The account of the methods is confined to a mere mention of some of them. No account of the estimation of the anti-bacterial properties of the blood or serum by the determination of its agglutinin-content is given, and a very large portion of the chapter is taken up with matter textually quoted from Dr. Blaxall's report to the Local Government Board on the preparation, glycerination and storage of calf-lymph. There is a certain lack of discrimination in the solution of material for presentation, and a decided lack of appreciation of the directions, in which scientific research is pointing towards rational therapeutics. For example, in relation to the treatment of malignant disease Dr. Hewlett wastes his time and space describing Coley's defunct "fluid," and Adamkiewicz's exploded "cancroin," but does not allude to the high probability that the discovery of cytolytic serum may prove of therapeutic value. Similarly he lavishes his last page on brewer's yeast as "a well-known (?) therapeutic agent and a popular remedy for boils," whilst he leaves his reader in ignorance of the fact that the hæmatolytic properties of the pyococci may be rationally antagonised by a suitable anti-hæmatolysin.

These are great defects—defects one would not expect to find in a work originating from such a source; defects which we can attribute only to undue haste and want of reflection.

on the part of a bacteriologist of Professor Hewlett's standing, who can hardly be suspected of ignorance. They are, however, defects which rob the book of much of the merit it might have possessed, and which prevent us from recommending it as an up-to-date and thorough-going exposition of its subject-matter.

Verhandlungen des Vereins für innere Medicin in Berlin.

Herausgegeben von dem Vorstande des Vereins. Jahrgang XXII., 1902-1903. Berlin. 1903. Ss. 488.

THE work of the Berlin Medical Society during the session 1902-3, as recorded in this volume of the Transactions, shows no falling off either in quantity or quality as compared with that of previous years. In the volume before us are a large number of papers of great importance, and the long and valuable discussions to which most of them gave rise show the interest which they excited among the members attending the meetings. We may mention a few of the subjects treated of by the different contributors to the work of the Society.

Liepmann describes a new method of staining to demonstrate fat necrosis, and states that by its means this condition can be detected in many cases when it is not apparent to the naked eye.

Strauss reports most interesting observations on the osmotic pressure and chemical composition of the human chyle collected from the thoracic duct of a patient in whom the duct was cut during the operation for the removal of a tumour. He finds that food, water drinking, and ingestion of salt have remarkably little effect on the osmotic pressure of the chyle and of the blood. Only about 10 per cent. of the fat of the chyle is other than neutral fat; hence an enormous synthesis must occur in the intestinal epithelium. It was found that the human blood had a very great lipolytic power, for when chyle and defibrinated blood were mixed, and a current of air passed through the mixture for 24 hours, 51 per cent. of the ether-soluble matter originally present had vanished.

Cohnheim contributes a long paper on the infusoria which

are met with in the human stomach and intestine, and their clinical import. He arrives at the following conclusions :—

1. Infusoria in the œsophagus and stomach indicate probably an ulcerated cancer of the œsophagus or stomach, which does not cause obstruction at the pylorus.

2. Infusoria may be considered as the first and almost certain sign of gastric carcinoma.

3. Living infusoria in the fæces are a sign of a primary chronic gastric disease (gastritis, usually atrophic), but are also indicative of severe entero-colitis.

4. Encysted infusoria may be met with in healthy persons who have previously suffered from gastritis or gastro-enteritis.

5. Infusoria (ciliata and flagellata) have no pathogenic, but only a symptomatic, diagnostic importance.

6. An attempt to destroy the infusoria is, therefore, irrational, and would probably tend to aggravate the real disease.

Glaser finds that in typhoid fever complicated by pneumonia the expectoration often contains the bacillus of Eberth. As it is accompanied by the pneumococcus or other organism it is doubtful how far the pulmonary affection is caused by the typhoid bacillus, but the possible dissemination of the latter by the sputum must be borne in mind.

H. Neumann maintains that Barlow's disease in children is due to poisoning by milk which has been overheated in the process of sterilisation, and that the proper treatment is to give either fresh or properly sterilised milk. Unless this is done antiscorbutic treatment is useless. He discusses the whole subject very thoroughly, and gives a considerable number of clinical records of cases of the disease.

Max Wolff has succeeded in producing typical *Perlsucht* in a calf by inoculation from a case of primary intestinal tuberculosis in a man. He thinks that the rarity of primary intestinal tuberculosis in the human subject is no proof that infection is not often due to food, such as milk, butter, and meat of animals suffering from *Perlsucht*. He agrees, therefore, with the resolutions passed by the London Congress on Tuberculosis regarding the dangers of infection from tubercular cattle.

Senator discusses the causation of cardiac hypertrophy

in renal disease. He is inclined to attribute it to a chemical irritation of the cardiac muscle by the altered composition of the blood; while the greater hypertrophy on the left side is due to the contraction and thickening of the arteries, also caused by the irritation of the vitiated blood.

Stadelmann writes a valuable paper on the diseases of the brain which supervene, after a period of apparent recovery, on injuries to the skull.

These few examples will suffice to show the great mass of interesting matter that is to be found in this volume of the *Verhandlungen*.

The Exact Science of Health, based upon Life's Great Law.

By ROBERT WALTER, M.D. Vol. I. Principles. New York: Edgar S. Werner Publishing Co. London: Keegan Paul, Trench, Trübner & Co. No date. Pp. 302.

At the beginning of this book we read that "it is not the vapourings of a novice, carried away on the wings of his enthusiasm, but the product of nearly half a century of earnest study and reflection." Then in large capitals the following sentence:—"Gravitation (force and law) gave us a reliable astronomy; chemical affinity gave us chemistry; while life's great law yields a correspondingly reliable vital science." With excited expectations and elevated hopes we turn to the expression of this law which is to raise biological problems to the exactitude of those of astronomy and chemistry, and we find the following:—

"LIFE'S GREAT LAW.—Every particle of living matter in the organized body is endowed with an instinct of self-preservation sustained by a force inherent in the organism, usually called vital force, the success of whose work is directly proportioned to the amount of the force and inversely as the degree of its activity." The author finds the closest analogy between this law and the law of gravitation. "Both declare the existence of a force which all experience proves to be inherent in the matter of their respective departments, and both work directly as the amount of the force and inversely as the degree of its activity which is the proper statement in both laws. It is the amount of the force rather than the

mass of the matter which they declare, and 'square of the distance' would seem to be but another way of declaring the 'degree of activity.' The essential truth in either case is the inherent nature of the force, which works attractively in the one case and self-preservatively in the other, to the performance of all function—the production of all phenomena."

We think our readers will excuse us from occupying more of their time, and filling up the valuable space of the DUBLIN JOURNAL OF MEDICAL SCIENCE by further extracts from or criticism of this work.

First-Aid in Accidents. By R. J. COLLIE, M.D., Knight of Grace of the Order of St. John of Jerusalem in England, Medical Superintendent of the Hygiene, Ambulance and Home Nursing Classes of the School Board for London; and C. F. WIGHTMAN, F.R.C.S., late Examiner and Lecturer on Ambulance to the School Board for London. London: George Gill & Son, Ltd., 13 Warwick-lane, E.C. Pp. 125.

THIS little book should prove a boon to lecturers on "first-aid" and ambulance work, who have in it a concise and adequate handbook which they can safely recommend to their pupils. The work is divided into chapters, each of which corresponds to the lectures set forth in the London School Board's Syllabus. The illustrations are numerous and accurate, while the printing leaves nothing to be desired.

The price at which the book is published (sixpence) should bring it within the reach of all those who attend first-aid classes.

Portfolio of Dermochromes. By PROFESSOR JACOBI, of Freiburg. English Adaptation of Text by J. J. PRINGLE, M.B. London: Rebman. 1903.

We have no hesitation in saying that the plates in Professor Jacobi's Atlas are most admirably executed, and in faithfulness and realistic presentation surpass most of the collections hitherto published. The process employed is that known as citochromy, the invention of Dr. Albert, of Munich,

and the reproduction of colours is obtained almost entirely by mechanical means apart from manual work. The great majority of the lifelike illustrations are taken from models in the Breslau clinic.

The object of the Atlas is not to illustrate the rarer forms of skin disease, but to furnish to medical men, teachers and students a handy and comprehensive series of illustrations of the skin affections most frequently met with in practice, in their various phases, and at a reasonable price, within the reach of all. This worthy object has been attained with remarkable success, and we can also congratulate Dr. Pringle on his terse and instructive letterpress.

The Atlas is well worth the money, and we heartily commend it to our readers. The only drawback, and one which can be easily remedied in future issues, is the lack of an alphabetical list of the illustrations, for no order or classification is attempted.

Diseases and Injuries of the Eye, with their Medical and Surgical Treatment. By GEORGE LAWSON, F.R.C.S. Sixth Edition. Revised and in great measure re-written by ARNOLD LAWSON, F.R.C.S. London: Smith, Elder & Co. 1903. Demy 8vo. Pp. 588, and 249 Illustrations.

THIS well-known and once popular book has not been revised since 1885, when the fifth edition was published. Mr. Arnold Lawson has now brought out the sixth edition, which, though based on the previous edition, is, in fact, almost a new treatise, so largely has it been re-written and brought up to date. Few who possess the original modest work will recognise in the present beautiful volume anything but a distant connection of the favourite of thirty years ago.

The endeavour of the present editor has been to present a work which will not only be of use to the student of ophthalmology, but will also prove valuable as a book of reference for the general practitioner. Several new features have been introduced. The chapter on each structure is headed by a brief anatomical outline which it is hoped will facilitate the study of the diseases of that particular structure.

Entirely fresh articles on "Elementary Optics," "Development of the Eye," "The Pupil," "Affections of the Eye in Diseases of the Nervous System," "Heterophoria," and a brief appendix have been added.

On the whole, the editor has fairly well succeeded in his task, but though we cannot go seriatim through each chapter, we note with regret that he has failed to describe, and barely mentions the most modern and certainly the best and most common-sense operation for the cure of entropion with trichiasis. To the rather antiquated and unscientific procedures of Burow, of Streatfield, and of Jaesche-Arlt, he devotes considerable space, and in the latter advocates the transplantation of the excised piece of skin into the intermarginal space. Such a practice the experience of many has condemned.

In describing Hotz's operation he says at the end, "The gap in the intermarginal space may, if considered advisable, be filled in by transplantation of a Thiersch graft or a piece of mucous membrane from the inside of the lip," and that is all he has to say about the transplantation of mucous membrane from the lip to the eyelid, a procedure which has done more to permanently cure entropion with trichiasis than all the other operations put together.

Mr. Lawson does not consider advancement of an ocular muscle should be undertaken in any patient under about eighteen years of age, and for younger patients he prefers tenotomy of the offending muscle.

His views on the use of correcting glasses will not receive universal endorsement; but, on the whole, we consider the work a reliable and satisfactory guide on the subject of which it treats, and we can recommend it as being for the most part well up to date.

A Manual of Ophthalmic Practice. By CHARLES HIGGENS, F.R.C.S.E. Second Edition, revised and edited by ARTHUR W. ORMOND, F.R.C.S.E. London: H. K. Lewis. 1903. Pp. 345. Crown 8vo, with Illustrations.

THE author states that the manual is intended entirely for students and general practitioners. It does not pretend to

go deeply into the subject, but merely to give as much information as is likely to be useful to those still engaged in their studies, or in general practice.

His object has been fairly well fulfilled, but in his attempt to give the necessary minimum he has often omitted much that, to our thinking, is important. The book is well and clearly arranged, well printed, and is on the whole a good book of its kind.

A Treatise on Diseases of the Anus, Rectum and Pelvic Colon.

By JAMES P. TUTTLE, A.M., M.D.; Professor of Rectal Surgery in the New York Polyclinic Medical School and Hospital; Visiting Surgeon to the Almshouse and Workhouse Hospitals. With eight Coloured Plates and 338 Illustrations in the Text. New York and London: D. Appleton & Co. 1903. Pp. 961.

THIS book being, as the author states in his preface, practically the outcome of twelve years conduct of one of the largest special clinics for teaching and treating rectal diseases, should prove of great use to those interested in such diseases, not only on account of the author's own experience but also owing to his extensive quotations from the work of others.

With regard to the illustrations, those in the chapter on perianal and perirectal abscesses explain the various forms and situations in a good and clear manner. There are several coloured plates in the book which we do not think add to either its value or appearance, and we should have preferred to see more illustrations from actual photo- and photo-micrographs.

The operative treatment recommended for fissure *in ano* seems rather severe, while the author omits the simple treatment so largely in use, and which we think is quite sufficient to cure the majority of fissures without incising the sphincter muscle as he recommends.

One of the best chapters is Chapter XI., which deals with fistulæ. The illustrations are very good, and the treatment recommended seems thoroughly up to date and worked out on antiseptic principles, which are not usually sufficiently dealt with in books on this subject.

With his remarks on "colostomy in malignant tumours of the

rectum" (pp. 796) we agree, and those surgeons who perform colostomy on almost all cases of carcinoma where a radical operation cannot be undertaken, would do well to read them. The different methods of excision of the rectum are thoroughly gone into, and form a useful and interesting part of the book.

Lessons in Disinfection and Sterilisation. By F. W. ANDREWES, M.A., M.D., F.R.C.P., D.P.H.; Lecturer on Pathology, &c., to St. Bartholomew's Hospital, London. London: J. & A. Churchill. 1903. Pp. 222.

THE scope and object of this little book are sufficiently indicated by the following extract from the author's preface:—It "owes its origin to a practical class which I conducted in the summer vacation of 1902 for some of the Nursing Staff of St. Bartholomew's Hospital. It is an expansion of the lectures and practical work of which that class consisted, and I have been induced to publish it because there seems to be no elementary book which deals with the bacteriological aspects of disinfection in a systematic manner. Sterilisation and disinfection play so important a part in modern medicine, surgery, obstetrics, and public health, that their principles require to be understood by those who would practise them intelligently. They are problems in physics and chemistry applied to bacteriology, and can only be grasped from this point of view. The majority of those who are called upon to practise them have neither time nor opportunity for a complete course of bacteriological study, but it is not a difficult thing for any teacher to devise a short practical course of laboratory instruction which shall effectively teach the essential principles of disinfection. I have endeavoured in these pages to set forth the outlines of such a course.

"The book is written for those who know no bacteriology, but who have sufficient acquaintance with its principles and methods to be able to understand what they are doing when they attempt to carry out processes of disinfection."

The author has succeeded in following out his programme to the letter. He has produced a unique little book setting forth the main points of bacteriology with admirable clearness

and absence of technicality, and showing how these points underlie the practice of disinfection. The earnest wish with which we close this little book (which costs but 3s.) is that every nurse would procure and carefully study it. Even qualified medical men might study it with advantage, affording as it does valuable information as to the best and most modern practice of sterilisation and disinfection in medicine, surgery, obstetrics, and public health. It is not all elementary. The explanation of ionisation at pp. 85 and 86, and the relations of this process to the germicidal properties of certain disinfectants—such as sublimate—is a very important one, and is given with great clearness.

We heartily congratulate Dr. Andrewes on having conferred so valuable a book on the medical and nursing professions.

Progressive Medicine: A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. HARE, M.D., Professor of Therapeutics in the Jefferson Medical College, Philadelphia, &c.; assisted by H. R. M. LANDIS, M.D. Vols. I. and II., for 1903. London: Rebman, Ltd. Pp. 450 and 437.

PROGRESSIVE MEDICINE is a Year-book published in four volumes yearly, at intervals of three months. In it are contained digests of the advances made in all the various branches of medicine. Each subject is completed for the year in its own volume. Thus in Vol. I., published in March, we have the Surgery of the Head, Neck, and Chest; Infectious Fevers, Pathology, Otology, and some other subjects. In Vol. II., published in June, we find Abdominal Surgery, Gynæcology, Diseases of the Blood, and Ophthalmology. Thus, anyone taking a special interest in one particular subject can learn about his own subject from one volume, and need not procure all four.

The contributors who have made the digests are naturally for the most part Americans, but we notice among them three British names—those of Drs. J. Rose Bradford, Ewart, and Turner (Edinburgh).

We look upon this as a valuable work of reference; the

digests have been carefully made. Their aim is to give a fairly full account of what the compilers think of value rather than to mention briefly all the points brought forward in a year's literature. Hence many important subjects are treated of at some length. The articles are written in a clear and readable style, and illustrations are introduced where needed.

In a Year-book such as this it is not desirable to pick out special points for notice. It is enough to say that the whole is up to a high standard.

Acute Dilatation of the Stomach. By H. CAMPBELL THOMPSON, M.D. Lond., M.R.C.P.; Assistant Physician to the Middlesex Hospital. London: Baillière, Tindall and Cox. 1902. Pp. 54.

IN this interesting monograph Dr. Thompson gives an excellent account of a morbid condition, rare indeed, but of great importance, seeing that it usually proves fatal when it occurs. It is met with in conditions of general weakness or debility, but the exciting cause may be of very varied nature—over-distention with food, a surgical operation, an injury. Dr. Thompson has himself seen five cases, which are fully described, and has collected from the literature of the subject notes of 44 others. The disease appears to consist in a rapidly-occurring paralysis of the organ, accompanied in most cases by a profuse secretion of fluid. The distended stomach forms a large cylinder, sharply bent on itself, forming a kind of V with one limb much the shorter. Treatment is usually futile, but in a few cases the assiduous use of the stomach tube has resulted in recovery.

Transactions of the Clinical Society of London. Volume XXXV. London: Longmans, Green & Co. 1902. Pp. 235.

AS might be expected from the name of the Society, the most of the papers in this volume are practical in their scope. Many of them are of much interest. Dr. Moullin writes on the treatment of ascites by fixation of the omentum. He

considers that this operation involves but little danger to the patient, and that if it is to be successful it should be done early. Several surgeons write on cases in which the Gasserian ganglion was excised. Dr. T. S. Wilson contributes a valuable paper on the theory of compensation in mitral valve disease, in which he argues that in this form of lesion the circulation, during this stage of compensation, is maintained by increased aspiratory force on the part of the left ventricle, and not by hypertrophy of the right ventricle. Drs. Hale White and Parkes record a case of malignant endocarditis in which Widal's reaction was present, although there were no signs of enteric fever, and no typhoid bacilli could be discovered.

We have merely picked out a few papers which struck us. There are many others of equal importance.

The volume is quite up to the high standard of its series.

An Atlas of Illustrations of Clinical Medicine, Surgery and Pathology. Compiled for the New Sydenham Society (a Continuation of the "Atlas of Pathology"). Fasciculus XVII. (Double Fasciculus), being VI. and VII. of the New Series. Xanthelasma and Xanthoma; Changes in the Skin caused by Arsenic; Pemphigus and its Variants; Fractures and Dislocations; Miscellaneous. Plates A. to O., and xcvi. to cxvii. London: The New Sydenham Society. Agent: H. K. Lewis. 1903.

THE title-page conveys a very good idea of the wide range of observations in clinical medicine and surgery contained in this portly instalment of the New Sydenham Society's Atlas. Its ruling spirit is, of course, Mr. Jonathan Hutchinson, F.R.S., to whom not only the Society but the profession at large owes so much. And yet the predominant influence of that clinical observer in itself opens the door to criticism. Thus, we are much better pleased with the caption on the title-page, "Changes in the Skin caused by Arsenic," which is no doubt indefinite, and therefore, perhaps, unscientific, than with the specific—shall we not say dogmatic?—description of a case of "Keratosi and Cancer from the use of Arsenic" (Plates cvi. and cvii.), of "Epithelial Cancer from Arsenic with Gland Implication"

(Plate cxiii.), and of "Epithelial Cancer from Medicinal Use of Arsenic" (Plate cxiv.).

Let us examine these cases a little more closely. We are informed that "the figures in this Plate (cvi.) show the palmar and dorsal aspects of the left hand in a man who had suffered from chronic psoriasis, had taken much arsenic, and who finally became the subject of arsenical cancer."

. . . "The patient was a man past middle age, and on whose right hand one of the patches had assumed malignant conditions necessitating amputation of the finger." This case is further illustrated in Fig. 1 of the next Plate (cvii.). The descriptive letter-press states that "the microscope declared the conditions to be characteristic of epithelial cancer." But is it quite fair or reasonable to attribute the cancerous growth to arsenic? Is it not more likely that the presence of chronic psoriasis, which the taking of "much arsenic" had apparently failed to cure, was responsible for the development of "keratosis of the palms," and also of "epithelial cancer"?

Again, let us consider the case illustrated in Plates cxiii., cxiv., and cxv. The patient was a man aged forty-eight, who had been the subject of psoriasis from boyhood. Under the advice of the late Mr. James Startin, subsequently that of Sir Erasmus Wilson, and lastly that of Mr. Milton, he had taken many prolonged courses of arsenic. He finally, we are told, became the subject of cancer. In the Plates a "cancerous ulcer" is shown in the pubic region, the edges of which ulcer are everted and sinuous, but unattended by any large amount of growth. The right groin was occupied by a large mass of adherent glands, which at the lower end had ulcerated and left a sinus. There was, also, an ulcer on the skin of the back, superficial and of polycyclical borders, but there was no great amount of growth. The glandular mass in the groin continued to grow, and the patient sank exhausted by the ulceration and discharges. "*No opportunity for microscopic examination was afforded.*" Mr. Hutchinson holds that keratosis of the soles of the feet, which had been present for a year or more before the patient's death, was quite independent of his old psoriasis. He attributes it to the arsenic which had been

given, and not to the psoriasis. Well, surely, this is a matter of opinion, and Mr. Hutchinson passes by in silence the very serious reflection on the treatment pursued by the three distinguished dermatologists whom he names in connection with the case, which is involved in the theory he puts forward.

Since we are in a critical vein, we may here also lodge an objection to the derived meaning attached to the term "vaccination" in the description of a striking case of impetigo contagiosa represented in Plate c. Here is the sentence to which we take exception:—"Epidemics of this disease have been observed in connection with vaccination in football-players, in whom the contagion occurs from the jersey." "Vaccination" is here used in the sense of inoculation—a word which may fairly be employed in the case of any contagious disease without risk of misconception. Not so "vaccination," which should, in our opinion, be restricted to its original meaning of inoculation with the vaccine disease.

For the rest, we have nothing but praise for this costly and magnificent instalment of the New Sydenham Society's Clinical Atlas, which might almost be called "Hutchinson's Atlas." Certain it is that its publication has been rendered possible not only by the wealth of clinical and pathological material accumulated by Jonathan Hutchinson in his long and brilliant professional career, but also through the untiring energy and boundless enthusiasm of that indefatigable worker and thinker. *Floreat ad multos annos!*

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By PROFESSOR C. VON NOORDEN, Senior Physician to the City Hospital in Frankfurt-am-M. New York: E. B. Treat & Co. Bristol: John Wright. 1903.

THESE handy and attractive little volumes, written by one of the foremost authorities (if not the very foremost) on the disorders of metabolism, will no doubt be received with welcome by English readers. The excellent translations have been made under the direction of Professor Boardman Reed,

of Philadelphia, and arrangements have been made for the simultaneous appearance of the English and German editions of the future volumes. The author tells us in his preface that "it has been arranged to have the collection contain not only dissertations from my pen, but also writings by my assistants and pupils—of course under my control and responsibility. The monographs are to express, above all, the personal views and observations of the writers; or they will contain collective presentations upon important questions. Only such subjects will be chosen as are of importance and interest to every physician."

PART I.—Obesity: the Indications for Reduction Cures. Pp. 59.

In the first essay, on Obesity, the author insists on the fact that reduction cures when properly carried out are not weakening. He shows the evils of routine treatment or the blind adhesion to any particular method of diet or other procedure, and points out what a happy hunting ground the treatment of obesity has hitherto offered to quackery. He then gives the indications for treatment in cases of simple obesity in otherwise healthy subjects, and for reduction cures in obesity complicated with other diseases. Among these complicating diseases the following are specially dealt with:—Diseases of the circulatory organs, particularly heart disease; diseases of the kidneys; chronic pulmonary diseases, particularly chronic bronchitis; chronic articular rheumatism, gout, and other diseases of the organs of locomotion; diseases of the nervous system, particularly neuralgia and hysteria; diabetes mellitus; and pulmonary tuberculosis, a disease which we are not apt to associate with obesity, but which in some cases under the modern scientific treatment is sometimes so complicated. It would be impossible to do the author justice by an abstract of his paper, as every sentence contains important matter. We can only say that the work (which runs to only 59 pages) should be carefully studied by every physician who has to undertake the difficult treatment of cases of obesity—cases which are, perhaps, not so frequent among us as they are in Germany and America.

The author's remarks are characterised by wideness of view and by caution; thus, with regard to the system of

excessive fattening carried out in so many sanatoria he writes: "I must raise my voice in warning against any exaggeration of this mode of treatment. Unfortunately such exaggerations are frequent now-a-days. I have followed a number of such cases, and I am not of the opinion that the condition of obesity renders these people more fit to struggle against the tubercular invasion."

The translation has been admirably done. The book will not take long to read, and will repay perusal.

PART II.—*Nephritis*. Pp. 112.

In the volume on *Nephritis*, after describing the customary treatment adopted in cases of acute and subchronic nephritis, and in contracted kidney, the author lays down the principle of physiological rest for the kidney. "Protective therapy in general is intended in the first place to save the diseased organ all superfluous work, and in the second place to eliminate all those irritants from the diet that might stimulate it to increased efforts." Great stress is laid on the uncertain indications which are given by fluctuations in the amount of albumin in the urine as to the good or bad effect of a certain line of treatment. It is further shown that the time after the administration of easily detected drugs (such as iodine, methylene blue) at which they appear in the urine is also an unreliable test for the power which the kidney has of eliminating the normal urinary ingredients. Of these it is found that in nephritis some are eliminated readily, others with difficulty. "The rule naturally suggests itself to exclude all those articles of diet that in process of metabolism form end products that are eliminated with difficulty, or at least to reduce them to the smallest possible measure." So we at once spare the kidneys and prevent the accumulation in the body of waste products. From this point of view the dietetic treatment of nephritis is discussed.

Should patients with acute nephritis be given a large quantity of fluid to act as a diuretic? Should milk be given in unlimited quantities? Should patients with contracted kidneys be kept on a mainly milk diet? or may they take meat; if so, are white meats better than beef and mutton? What is the effect of alcohol in Bright's disease? These

and other similar questions are the points the author sets himself to discuss.

In acute nephritis, recent cases of chronic parenchymatous nephritis, and acute hæmorrhagic nephritis occurring as an exacerbation of chronic contracted kidney, the following substances are excreted with difficulty—urea, creatinin, pigments, hippuric acid, phosphates, inorganic sulphates, potassium salts (?) and under certain circumstances, water. While uric acid, xanthin bases, aromatic substances, ammonia, amido acids, chlorides, carbonates, and under certain circumstances water, are readily eliminated. Basing himself on these experimental facts, and on a very large clinical experience, the author has written a very valuable essay, in which he gives us a more rational and scientific standpoint for our treatment of kidney disease than we find in any other book with which we are acquainted. We would most cordially recommend Professor von Noorden's work to all our readers, dealing as it does with a class of diseases which, unlike obesity, is as common here as in any other part of the world.

For the book we have nothing but praise. Professor von Noorden cares nothing for tradition. He has investigated for himself and has given us the result of his experience. Most of us—in fact, in some ways, all of us—are too prone to be guided by venerable authority; we easily fall into a rut, and we find it difficult to liberate ourselves. Such a book as this makes us think. We hope that many will read it.

PART III.—*Membranous Catarrh of the Intestines (Colica Mucosa)*. Pp. 64.

The third essay, on Membranous Intestinal Catarrh, deals with a very troublesome disease whose nature is rather imperfectly understood, and whose treatment is generally highly unsatisfactory. From a long discussion of the pathology and treatment the following conclusions are drawn:—

“1. Typical colica mucosa occurs almost exclusively in subjects who have been suffering for a long time from constipation (usually so-called obstipatio spastica), or in subjects who still suffer from this affection.

“2. Chronic constipation alone, however, never produces colica mucosa. There must be in addition excessive irritability

and over activity of the glands of the large intestine that produce mucus. This over activity of the glands is not due to anatomic changes in the mucosa (inflammation), but is due to certain nervous influences. It occurs almost exclusively in persons who have a neurasthenic or an hysterical predisposition.

"3. In addition to the typical symptom complex of colica mucosa there are certain abortive forms that are described and explained in the text.

"4. The cure of colica mucosa presupposes a cure of the constipation. Any method of treatment that causes a complete and permanent disappearance of constipation will also cause disappearance of colica mucosa. The method that we have proposed is the best one for the treatment of the combination of colica mucosa and constipation that exists. We call it a dietetic exercise treatment of the intestine in contradistinction to the protective treatment that is usually employed.

"5. The general nervous state of the patients calls for particular attention, if for no other reason than that a continuance of the nervous disturbances exercises a deleterious effect on the functions of the bowels, and derangement of the bowel-action can precipitate a new attack of colica mucosa. Appropriate treatment of the nervous system should be combined with the dietetic treatment, or should follow it; it should not precede it. This is the correct plan, for frequently a cure of the digestive disturbances (constipation, the passage of mucus, pain) and an improvement of the general nutrition lead to an amelioration or a complete cure of the nervous system without any other treatment."

In the opinion of the author the treatment of this disease is mainly dietetic. He advises a diet rich in cellulose as being really more "digestible" in colica mucosa than a diet which leaves but little residue in the intestines. Under the influence of the former diet the stools become abundant and soft.

The dietetic treatment referred to above under 4 consists in the administration of what is called a coarse diet—brown bread, vegetables containing much cellulose, fruit with small seeds and thick skins, and large quantities of fat, particularly

butter and bacon. The results of this treatment have been very satisfactory:—Complete success in 79 per cent. of the cases; incomplete in 15.8 per cent.; permanent success in 50 per cent.; relapses in 13.1 per cent.; result unknown in 15.8 per cent.; failure in 5.2 per cent.

In our experience colica mucosa—paroxysmal attacks of abdominal pain followed by the evacuation of tough mucus in lumps, strings, or membranes—is not a very common disease in this country. However, Professor von Noorden's remarks will apply to many forms of intestinal trouble, and will be studied with advantage.

Although these volumes are called *Parts I., II., and III.*, each is really a complete work in itself, and may be obtained separately from the others.

Catechism Series. Physics. Part I. Edinburgh: E. & S. Livingstone. 1903. Pp. 80.

THIS latest addition to the well-known "Catechism Series" discusses, in question and answer, the properties of matter, work and energy, statics and equilibrium, dynamics, hydrodynamics, the elasticity of bodies, and molecular physics.

From page 58 to the end of the booklet a number of useful calculations are worked out in illustration and by means of formulæ for uniformly accelerated motion from rest and with initial velocity. These formulæ are explained at page 11.

The student is strongly recommended to acquire a thorough working knowledge of these formulæ, and he is properly reminded that practice is essential for ability to apply them.

PART III

SPECIAL REPORTS.

REPORT ON SURGERY.

By WILLIAM TAYLOR, M.B., F.R.C.S.I.; Surgeon to the
Meath Hospital and County Dublin Infirmary.

I.

In the "Annals of Surgery," for July, 1903, will be found an exhaustive paper by Professor von Mikulicz, M.D., of Breslau, Germany, on the Surgery of the Pancreas, his paper being based upon 60 cases from his own personal experience. He discusses the cause of the tardy development of the surgery of the pancreas under three heads:—

1st. The topographical relations of the organ—its hidden and protected position.

2nd. The difficulty of diagnosis, the main obstacle here again being its concealed position. Objective phenomena are thus difficult to elicit, and, when elicited the interpretation is often, or usually, uncertain. The subjective symptoms are just as indefinite. Experience has shown that in affections of the pancreas, which have been treated surgically, positive functional disturbances have been observed only in rare instances. At the present time most cases are operated upon when the diagnosis is only probable, and only after the abdominal cavity has been opened can a differential diagnosis be made.

3rd. The operation, so far as it includes the organ itself, is much more dangerous than an operation upon any other abdominal organ. This is partly the result of the fact that in most diseases of the pancreas, with the exception of cysts, the general condition of the patient is so low that his recuperative powers are markedly diminished, while a further danger lies in the peculiar physiological character of the gland itself. The escape of pancreatic juice seriously affects the peritoneum and neighbouring tissues. The

secretion from the injured pancreas leaking into the abdominal cavity can of itself so damage the peritoneum that death from this cause alone may result, as shown by a number of experiments and clinical observations of accidental injuries in man. The pancreatic juice mixed with blood has, no doubt, a very toxic effect, and can, in the so-called apoplexy of the pancreas, result fatally without the complication of bacterial infection. In this connection the author of the paper does not refer to the normal physiological secretion, but rather to the exudate from the injured organ.

Whatever operation may be done on the pancreas, we must take the greatest pains to prevent the secretion of the diseased gland from getting into the abdominal cavity. This may be done in two ways—either by turning the injured part inwards and closing it with deep sutures, so that the peritoneal covering is again in continuity, or by the use of the tampon.

Pancreatic diseases which concern the surgeon are divided into three great groups:—

I. Injuries.

II. Inflammatory processes, including pancreatic apoplexy and pancreatic calculi.

III. New growths and cysts.

I. In connection with injuries the problem presented to the surgeon is clearly that of arresting hæmorrhage, and preventing as much as possible the flow of pancreatic secretion into the abdominal cavity and the subperitoneal tissues. Both these problems may be solved by deep sutures and ligatures *en masse*, or by the use of the tampon, or both. When the pancreas is injured great stress is laid upon the importance of thoroughly washing out the peritoneal cavity with warm normal salt solution. The indication for operation depends not only upon the diagnosis of an injury to the pancreas itself, but also upon the severity of all the symptoms, especially and particularly the strong accentuation of such symptoms. These symptoms are: increasing anæmia, the physical signs of blood in the abdominal cavity, and peritoneal irritation. No definite rules can be laid down as to whether one should await further developments or proceed immediately to laparotomy in any given case.

The suspicion of a severe injury to the pancreas should encourage us to act quickly.

Severe injuries to the pancreas which are not submitted to operation terminate fatally almost without exception.

II. The author adopts Mayo Robson's classification from the clinical standpoint, and divides the inflammatory affections of the gland into acute, subacute, and chronic. The classification of Fitz into hæmorrhagic, suppurative, and gangrenous pancreatitis rather represents different stages of the disease with a common ætiology.

The following points have to be borne in mind in considering the ætiology of acute pancreatitis:—

1. The very slight tendency of pancreatic hæmorrhage to stop spontaneously.

2. The locally destructive and the general toxic action of the pancreatic ferments set free by the inflammatory and hæmorrhagic processes; and finally,

3. The ease with which the pancreas may be infected from the ductus choledochus.

The author considers acute pancreatitis as an acute phlegmon which, on account of the peculiar nature of the tissue, runs an unusually severe course.

As in an ordinary phlegmon, so in the pancreas, the only rational therapy is to open the focus of infection with the knife, and to empty and drain the toxic and infectious exudate. Gauze tampons will best combat the fatal tendency to hæmorrhage.

In the subacute forms the surgeon has time to observe his case more carefully. A delay in most of these cases is not inopportune, as the diagnosis is still more uncertain than in acute pancreatitis. Chronic inflammations of the pancreas were not regarded until recently as suitable for surgical treatment. Two things, above all others, have been learned in the last few years:—

- 1st. That chronic pancreatitis runs a course not dissimilar to that of pancreatic carcinoma, and has often been mistaken for it.

- 2nd. That active interference has often been postponed because we have been unable to properly recognise the condition of chronic pancreatitis, and have confounded it with

a condition beyond surgical relief. Another important point is the close relationship existing between chronic pancreatitis and diseases of the biliary tract. Gall-stones which become impacted near the papilla Vateri, even though small, have an important bearing in the development of chronic as well as acute pancreatitis. Infection arising from a cholangiitis may spread through the pancreatic duct to the pancreas. On the other hand, a chronic pancreatitis of the head of the pancreas can easily simulate a cholelithiasis by compression of the common bile duct. From this it is evident that a chronic pancreatitis must always be considered in making a diagnosis of cholelithiasis; and, further, that with gall-stones and cholangiitis, especially when the common duct is involved, one must be prepared to find a lesion also of the pancreas.

III. Owing to the uncertainty of the diagnosis of these conditions, an operation should always begin as an exploratory incision. The subsequent procedure depends on what is found. Calculi may be removed from the gall bladder or ducts, and the gall bladder and ducts drained by performing a cholecystostomy or cholecyst-enterostomy. In order to diminish the risk of retrograde infection of the biliary tract after cholecyst-enterostomy an entero-anastomosis, at a distance of about 10 centimetres from the original anastomosis, is immediately added, which deflects the intestinal circulation from the loop in connection with the gall-bladder.

The author urges early operation in cases of chronic pancreatitis, as severe disturbances of nutrition can occur following gradual degeneration of the organ.

Of the 60 cases the author personally operated upon, 30 were in association with cancer of the stomach. Of the remaining 30 cases, 10 were typical pancreatic cysts, of which two were removed and eight were incised and drained. All recovered.

Two cases of subacute pancreatitis were met with, and both evidently recovered after operation. Two cases of chronic pancreatitis were met with; one died, ten days after cystentro-anastomosis, from pneumonia. One was mistaken for carcinoma and lived four years after the laparotomy. One case of contusion of the pancreas, in which an immense

hæmatoma developed, recovered after operation—the hæmatoma being opened and drained.

Fifteen cases of malignant disease of the pancreas were encountered. In these exploratory laparotomy was done seven times, and cholecyst-enterostomy five times. Of the latter one died as the result of the operation. Once a gastro-enterostomy was done for a stenosis of the duodenum due to a pancreatic tumour. Once extirpation of a tumour in the head of the pancreas was done. All three cases ended fatally.

II.

Professor Hans Kehr (Habberstadt) has recently published the results of 720 laparotomies for gall-stones. His first operation was performed in 1890, and since that time he has performed 720 operations upon 655 patients. To understand the subject he strongly urges a careful study of the pathological changes produced by gall-stones. This he considers can best be done during operations, and he believes that calculi in themselves produce no symptoms. The symptoms produced by gall-stones arise only after infection takes place. Jaundice was absent in from 80 to 90 per cent. of his cases in which stones were lodged in the gall-bladder or cystic duct. Even when the calculi were lodged in the choledochus jaundice was absent in over one-third of the cases. He ascribes both the colic and jaundice to inflammatory changes in the majority of cases. A palpable tumour in the region of the gall-bladder is present only in acute, rarely in the chronic, cases. A cure of a case of gall-stones by internal medication seldom occurs. Where such a cure is supposed to take place this simply means that the inflammation has subsided, the calculi then remaining latent for the time. He considers it possible to make an exact anatomical diagnosis from the anamnesis or history, the physical signs and careful observation.

In case of chronic choledochus obstruction we must learn to distinguish between calculi and tumours. In the majority of cases he is now able to make a correct special diagnosis.

Kehr does not operate on every case which he examines. The presence of calculi is not of so great a value as an indication for operation as their pathological results—viz., in-

flammation and choledochus obstruction. His conclusions are :—

I. He believes medical treatment produces a latent condition in many cases ; a cure in only some few.

II. He believes in Riedel's dictum to remove the stones as soon as discovered, for the patient will thus be protected against many of the dangerous sequelæ of gall-stones, but as such early operations cannot always be done in practice, Riedel's advice is of little practical value.

III. If the attacks are mild and there is a complete latency in the intervals, he does not advise operation.

IV. Acute obstruction of the common duct is generally to be treated medically ; but, if symptoms of cholangiitis become prominent, and the jaundice is associated with emaciation and anæmia for some time, an operation must be considered.

V. Frequent colics without jaundice or the passage of stones if causing invalidism are an indication for operation.

VI. Colics associated with jaundice and the passage of stones during each attack should be treated medically, but if the attacks are frequent, and the patient seems failing, he would operate.

VII. Dropsy and empyema of the gall-bladder, as well as pericholecystic suppuration are to be dealt with surgically.

VIII. Chronic choledochus obstruction should not be permitted to exist too long if a Carlsbad cure has been of no avail.

IX. Patients with gall-stones who have become addicted to morphin should be operated upon under all circumstances. The morphin habit can be cured subsequently.

X. Early operative treatment alone is of any service in carcinoma of the gall-bladder.

XI. Patients with chronic jaundice, which is not dependent upon a stone in the common duct or incurable disease of the liver, should be operated upon within three months at the latest, as a chronic interstitial pancreatitis instead of a suspected carcinoma of the head of the pancreas will often be found.

XII. The results of gall-stones, such as suppurative angio-cholitis, abscess of the liver, perforative peritonitis,

subphrenic abscess, severe pyloric and duodenal stenosis as well as ulcers, all demand surgical interference.

Of the 655 patients upon whom Kehr operated 536 were women and 119 men.

In his first 360 operations the majority of the operations were cholecystostomies, 54 per cent. In the last 360 operations cholecystectomy and drainage of the hepatic duct predominate, 64 per cent. being cholecystectomies, while in 41 per cent. of the cases the hepatic duct was drained. In the first series only 20 per cent. were cholecystectomies, as compared with 64 per cent. in the second series, while in the latter the cholecystostomies were only 20 per cent. as compared with 54 per cent. in the first series.

He prefers cholecystostomies for all acute processes. In operations during the latent period he believes the gall-bladder should be extirpated. He prefers drainage to suture after the removal of stones from the common duct. During the past year he drained the hepatic duct in order to avoid recurrence. The mortality of cholecystectomy with hepatic duct drainage is not over 2 to 3 per cent. Adhesions around the neck of the gall-bladder can produce the same symptoms as gall-stones. In these cases the gall-bladder should be extirpated to avoid recurrence.

About 10 per cent. of the cases which consult a surgeon have carcinoma. Such patients have no symptoms until a tumour is palpable, and then operation is of no avail. Twelve per cent. of the cases were complicated with gastric affections, principally a stenosis, for which gastro-enterostomy is advocated in preference to pyloroplasty.

He makes it a rule to palpate the pancreas, and in case of disease prefers an anastomosis between the stomach and gall-bladder to any other operation.

His total mortality in the 720 laparotomies for gall-stones was 15.5 per cent., but if he were to exclude complicating operations, such as gastro-enterostomy, and hopeless cases, such as carcinoma and cholangiitis, the mortality would only be 3.5 per cent.

The mortality of cholecystostomy was 2.1 per cent.; that of cholecystectomy, 3.1 per cent.; while that of drainage of the common and hepatic ducts was 6.5 per cent.

During the past two years he has lost only 2 per cent. of the common duct cases, owing to more rapid technique, which he considers absolutely essential in this operation.

If gall-stone operations are complicated with gastro-enterostomy the mortality rises to 21 per cent. If complicated with inoperable carcinoma or cholangiitis, the mortality is 97 per cent.

The average mortality of uncomplicated cases of gall-stones is not more than 2 per cent. The hepatic duct is drained by opening the common duct in its supra-duodenal portion, and then a drainage tube is inserted for two inches into the hepatic duct, and the entire bile led to the surface for about fourteen days. This procedure is much less difficult than suture of the common duct, and not so apt to overlook stones. Gauze tampons are placed around the tube leading to the hepatic duct. He never observed fistula or stenosis or ascending cholangiitis following hepatic duct drainage.

III.

In *La Presse Médicale*, for Saturday, July 18th, 1903, will be found a report of six cases of cancer, said to be cured by the "Cancroin" of Professor Adamkiewicz, of Vienna. In the same journal for January 22nd, 1902, he reported four cases of cancer of the œsophagus, said to have been cured by this special toxin. According to Adamkiewicz the toxin, considered from a chemical point of view, is a "trimethyl base of oxide of ammonium in double combination with phenol and citric acid." The present list of cases includes cancer of the tongue, cancer of the larynx, cancer of the stomach, cancer of the breast, cancer of the uterus, and cancer of the retina. Adamkiewicz explains the marvellous results he obtains by his conception of cancer. According to him, cancer is not an epithelial production, but a living entity which his serum kills and eliminates from the organism. Be it as it may, the Viennese professor does not pretend to cure all the cases which are presented to him. "It is clear," he says, "that when an essential organ has been compromised to such a state that it cannot recover its physiological functions, the patient succumbs even when freed from his cancer." From clinical experience he believes he is right in

affirming that "Cancroin" possesses enough power to cure cancer, to prolong existence in less fortunate cases, and in any event is never harmful. At first the injections are performed daily. The quantity of the serum generally employed on the first day is a $\frac{1}{2}$ cc. The dose is progressively increased, till as much as 1 cc. or $1\frac{1}{2}$ cc. In some exceptionally severe cases he has given 2 cc. Intense and even dangerous reactionary phenomena may be produced thereby. The treatment is suspended after the elimination of the cancerous element.

IV.

In the *Annals of Surgery* for August last will be found two papers—one on "Thyroidectomy and Sympathectomy for Exophthalmic Goitre," by B. Farquhar Curtis, M.D.; the other on "The Surgical Treatment of the Exophthalmic Goitre," by John B. Deaver, M.D. The summary of the somewhat lengthy paper by Dr. Curtis is as follows:—Exophthalmic goitre can be cured both by thyroidectomy and by sympathectomy. A perfect result can be expected in about 60 per cent. of the cases of thyroidectomy. Sufficient time has not elapsed to judge of the permanency of the cure, but the immediate results of sympathectomy are far superior to those of thyroidectomy. The relative mortality of the two would also seem to favour sympathectomy (Kocher, four deaths in 59 cases of thyroidectomy or ligature only; Jonnesco, none in 14 bilateral sympathectomies). In the authors' own cases the proportion is the opposite. There seems to be a serious danger of fatal acute thyroidism after both operations. It seems wiser to use local cocaine anæsthesia for thyroidectomy, and to give it a trial also in sympathectomy. Sympathectomy should be performed on one side only at a time, with an interval between the operations sufficiently long to permit the patient to recover from the effects of the first operation.

The conclusions Dr. Deaver arrives at from his own observation and from a study of the work of those whose experience has been extensive are:—

I. That as surgical treatment is recognised as the most satisfactory in Exophthalmic Goitre, so is complete bilateral

cervical sympathectomy to be considered the operation of choice.

II. The operation should not be performed during the height of physical irritation or tachycardia, nor by the operator who has not an absolute knowledge of the anatomy of the neck and a large experience in dealing with difficult operative procedures, or the means at hand to cope with any emergency.

III. The results of sympathectomy are far better than the other procedures, the mortality is much lower, and in cured cases the improvement is permanent.

CRUELTY TO ANIMALS.

IN the July issue of *The Humane Review* is to be found an article by the Right Rev. Mgr. Canon John S. Vaughan, which will be found well worthy of perusal by all thoughtful and cultured readers. The title is—"Cruelty to Animals and Theology: A Reply." He gives the orthodox teaching of the Roman Catholic Church at present on this much-debated subject. He takes for the (duplex) text of his discourse two quotations from the published opinions of two lately-deceased English Cardinals. "*We have no duties towards the brute creation* ; there is no relation of justice between them and us. Of course, we are bound not to treat them ill, for cruelty is an offence against that holy law which our Maker has written on our hearts, and it is displeasing to Him. But they can claim nothing at our hand ; into our hands they are absolutely delivered. We only use them ; we may destroy them at our pleasure, not our wanton pleasure, but still for our own ends, for our own benefit and satisfaction, provided that we can give a rational account of what we do." The above are the words of John Henry, Cardinal Newman. The second quotation is from Cardinal Manning :—"It is true that man owes *no duty directly to the brutes*, but he owes it to God, whose creatures they are, to treat them mercifully." Starting from these expressions, the reverend writer explains in full the present teaching of the Roman Catholic Church on the subject of *cruelty to animals* in general, and on *vivisection*, in particular. The article is most brilliantly written, and its reasoning throughout is of the most exquisite subtlety. We do not feel called upon to express a further opinion, but cordially recommend its perusal to all our readers.

PART IV.

MEDICAL MISCELLANY

Reports, Transactions, and Scientific Intelligence.

INTRODUCTORY ADDRESS.*

By SIR PHILIP C. SMYLY, Surgeon to the King in Ireland, and Surgeon to the Meath Hospital.

It has come to my turn to address you to-day, and thereby open the Session for 1903 and 1904. This year completes the third Jubilee of the Meath Hospital and County Dublin Infirmary. Meath Hospital students are to be found all over the world, and wherever they are found they are in good positions and do credit to themselves and to the hospital where they learned their art; and whenever you meet them they say, "How goes the old Meath?" "I must some day have another look at the old Meath." This, ladies and gentlemen, is a term of affection and not a reflection on the age of the hospital or of the medical staff, for I believe the combined ages of the staff usually come to very much the same total when added together. It has ever been the usage of the Meath that as men drop off at one end, young men who have made a reputation for diligence and earnestness in their work are added on at the other end. Thus we have always had zeal gaining experience at the junior end—experience with as much zeal as is possible under the circumstances at the other end.

Since the last time I opened the Session there have been many changes. One of the most serious I count the death of Sir William Stokes. He was a true friend, a true gentleman, and a distinguished surgeon, who gave up his life in the service of his Queen and country, but not until he had made a great reputation for himself, and perpetuated the reputation of his father, William Stokes, in his memoir of that great physician, who with Graves made the Meath Hospital famous all over Europe. Trousseau, the great French physician, is reported to have said: "In my Graves and Stokes I read daily as I do in my breviary." This

* Delivered at the Meath Hospital and County Dublin Infirmary at the opening of the 151st Session, 1903-1904, on October 12th, 1903.

volume by Sir William every Meath Hospital man should have among his books. It is a well-told history of a great physician, and shows how a great name can be made.

Sir William Stokes was one of the first in Dublin to adopt Listerism, and by his practice and eloquent addresses at various medical and surgical societies and congresses did much towards the adoption of Listerism all over the world. The new operating theatre, where we have every contrivance to enable the surgeon to practise aseptic surgery, was in no small measure due to the earnest and active co-operation of Sir William Stokes. Doubtless some of you may remember the instructive address given in this hospital by the late Mr. Patteson on antiseptics. Though such a short time a member of the staff he won the esteem and respect of his colleagues. This whole subject is now so well known that I will not take up your time by any panegyric; but I will mention a few of the surgical possibilities which have now become daily facts, and could not have been thought of before Lord Lister. I remember the time when Sir James Y. Simpson brought a resolution before the Governing Body of the Infirmary in Edinburgh to prohibit any more operations in the hospital, and also to build a small hospital outside the city, whither all operation cases were to be sent, and where operations were to be performed. Then came Lister and began his great revolution. Sepsis and microbes were banished and surgery again flourished. Since that time organs that no surgeon ever thought of treating are within surgical reach. For example, the prostate gland can now be removed, and you will find in *La Presse Médicale* for the 19th of August, 1903, an article by Jarvis et R. Proust on "La Méthode de Freyer." Dr. Freyer is an Irishman in very large practice in London, and is a most distinguished member of that great Association known as the "Irish Graduates' Association," which has done so much for Irishmen practising in England. To this Association is due the removal of an order that no Irishman should hold hospital appointments in England. It is an Association which every Irish medical man should join wherever he may live, whether in Ireland or England, or in the Colonies of this great Empire. The kidney is an organ now within the reach of the surgeon, and many and various are the operations on it, followed by most brilliant results. Care should be taken before removing a kidney to see that there is a second to carry on the work, for it has happened that the only kidney present has been unfortunately removed, with of course fatal results.

I have just received a very interesting note from Dr. Freyer describing Edebohls' operation on the kidneys for Bright's disease, which he did on the 17th of June last. He writes :—

" I rapidly cut down on, and decapsulated completely one kidney after the other, the whole operation lasting thirty minutes. The operation was borne well ; and, to my astonishment, a magical change for the better was established during the first few days, the functions of the kidneys being re-established. The child was taken to the country after a fortnight. I saw him once down there since, and have heard off and on from the parents. 1. The case is not a fair test of Edebohls' procedure, as the disease was too far advanced. 2. The operation undoubtedly prolonged the child's life. Though not convinced by the record of the cases published by Edebohls beforehand, I am bound to confess that the almost miraculous change in the lad's condition after the operation inclines me very favourably to operating in cases where the disease is not so far advanced."

Recently the pancreas has become of surgical interest. Von Mikulicz-Radecki (*Annals of Surgery*, July, 1903) publishes his personal experience of operative interference for disease of the pancreas, which, he points out, is at the present time the most incomplete chapter in the realm of abdominal surgery. Besides thirty cases in which this surgeon had the opportunity of operating upon the pancreas while resecting the stomach for cancer, he has operated directly on the pancreas itself thirty times, and with very good results.

The two great subjects which are interesting both the profession and the public now are—

TUBERCULOSIS AND CANCER.

I think, though our hopes have many times been dashed, that there will be some good results from the deliberations of the " Cancer Research Fund." The joint annual meeting of the General Committee of the Cancer Research Fund was held on July 30th last. The Report of the first year's work was submitted by the Executive Committee, and its adoption was moved by Lord Strathcona. He said the work of research had now been thoroughly organised, and expressed the opinion that in view of the millions who were interested in its results it seemed remarkable that only 213 persons figured on the list of subscribers. A further appeal to the public he thought ought to be successful in getting in the £40,000 or

£50,000 which was still absolutely necessary to enable the research to be thoroughly prosecuted. He understood that the Report had been approved by their President, H.R.H. the Prince of Wales. I will read you an extract from Mr. Balfour's reply^a to a vote of thanks moved by Sir William Broadbent.

"Mr. Balfour expressed his pleasure at the motion, and joined in the general regret that the Prince of Wales had been unable to attend himself. He was not, he thought, going beyond his duty if he stated that the Prince was not content merely to watch proceedings as an outside spectator; on the contrary, he had actively interested himself in the Report, and was as zealous as ever in furthering the great work upon which they were all engaged. . . . It seemed to him that many, both of the public and the medical profession, were inclined to be unduly pessimistic as to what would be the outcome of the research. The inquiry was undoubtedly one of great difficulty, but he thought they were wrong in being discouraged. He would like to remind the audience of the immense difference between medicine and medical science as it was at the beginning of this century and what it was one hundred years before. The progress since 1800 had been immense. He had no reason to doubt that the progress of medicine would be as rapid in the future as it had been in the past. . . . For himself he took comfort and encouragement from the very point which to some seemed a cause of discouragement, and that was the very breadth and sweep of the inquiry.

"Isolated research by individuals had been going on for years all over the world, but what was wanted was what they were now trying to effect, and that was the linking up and co-operation of all those who, whether through their work as practical physicians and surgeons or through their scientific attainments as biologists, could help to turn darkness into light, and reveal the cause and origin of the disease itself, and the cause of its special distribution as regards age, sex, and locality.

"In conclusion, he desired to impress on the public, so far as his voice could reach it, to come forward in a liberal spirit, not too impatient of results, not too anxious to receive a dividend in discovery for every subscription, but anxious to endow that great machinery for research of which they were in charge in a way which, by the accumulated learning and experience of years,

^a British Medical Journal. August 8, 1903. P. 317.

would do something to relieve mankind of what was after all one of the greatest curses under which humanity groaned."

The various forms and modes of application of electricity to cancer have for the last few years been of the very greatest interest, not only to the medical profession, but to many of the general public. The *Brit. Med. Journal* says: "The matter is one that particularly concerns men of business and those actively engaged in productive work of any kind, for cancer is, at the present day, the great destroyer of careers, 'the abhorred shears that cuts the threads of countless useful lives.'" Dr. Bashford says it is extremely difficult at the present time to estimate the effects of treatment. "The results so far brought to our notice do not establish the efficiency of any of these measures (the Finsen light, high frequency currents, and X-ray) as curative agents in sarcoma and carcinoma." His conclusion is that at present, "when so much activity is displayed in developing electro-therapeutics, it will be well to regard the whole question as still *sub judice*;" and yet in the medical journals we have reports from time to time of cures—for example, in *La Presse Médicale* for 19th of August, 1903, we have a case of cancer of the breast cured by X-rays. The patient, seen for the first time in 1903, had cancer of the breast from 1901. This cancer had lately ulcerated, and caused cruel sufferings to the patient; it was accompanied by numerous axillary nodules, Mons. Mondain (du Havre) and M. Marion decided to try X-ray. They placed at a distance of 20 to 30 centimetres a soft tube (*ampoule molle*); at the second sitting the pain diminished completely, and at the thirty-ninth day from the commencement of the treatment the cicatrisation was complete, notwithstanding the delay due to a radio-dermatitis which intervened.

That horrible disease lupus, which for so long was called cancer, but which we now know as tubercular, is rapidly becoming amenable to treatment. It is not long since a careful curetting was followed by very good results, and, no doubt, many of the relapses are due to neglect of subsequent treatment. In the *Dublin Journal* for August you will find a paper by C. M. O'Brien, M.D., "Experience of a Year's Trial of the Light Treatment for Lupus," and his results are most satisfactory. He not only uses the Finsen light, but also the X-rays. Dr. O'Brien says: "If my opinion as to the permanency of cure were solicited I should say that the Finsen light in this respect has no superior. In this belief I am strengthened by experience derived from personal examination of

many cases at the Finsen Institute, Copenhagen, which were cured and had remained so, from one to six years, and are still so, I believe. I am further of opinion that in the treatment of circumscribed superficial lupus the Finsen light has no equal." It is a paper well worth reading.*

Here I should like to call your attention to pulmonary tuberculosis, known to the public as consumption; of late years much has been learned, though there is much still to learn, with regard to its treatment. I would particularly call your attention to the third Report of the National Association for the Prevention of Tuberculosis, and especially to the motto on the outside cover, due to His Majesty the King, who said, as Prince of Wales—

"Consumption is a preventable disease.
If preventable, why not prevented?"

The Report, p. 9, says: "Much of the work of the Branch during the past year has been devoted to the spread of information (education) in the schools and through the Press on the subject of tuberculosis." I would also call your attention to a very clear and useful pamphlet by the Roman Catholic Curate of Ballinrobe with a preface by Sir Francis Cruise, published by the Catholic Truth Society of Ireland, and to Mr. Culverwell's paper in the *Dublin Journal of Medical Science*. It would be well for the Dublin Branch of the National Association for the Prevention of Tuberculosis to reprint this excellent paper for general circulation. Would it not be a great help towards stamping out this dreadful disease if Christian men of every church were to join in helping forward the great and good work of prevention? Prevention is better than cure. But much can be done towards cure. Dr. Henry M'Cormack, of Belfast, was one of the first to teach fresh air and good feeding as the cure for consumption. The outcome of this knowledge is the great development of the sanatorium in every part of the world. One of the chief uses of the sanatorium is that it is in itself an educational institution, not to teach science so much as common sense; to teach sufferers how to live, and how not to infect others. There is no doubt at present but that high air is a very important factor in the treatment of disease. In the *Davos Courier* for some time past there have been some very good articles on "Altitude and Health."

There is to be a large British Sanatorium at Davos, to be called

* There is probably a great future for the extraordinary substance called Radium, which is as costly as it is wonderful—30,000 francs a gramme (£1,200).

the "Queen Alexandra Sanatorium for Consumption." The Report of the Bâle Sanatorium at Davos is of the greatest value in ascertaining the real worth of the Davos climate. The Bâle Sanatorium was founded in 1896 by the City of Bâle; and the patients, mostly of the working classes, pay only very small fees, the balance being made up by voluntary contributions and donations. "Dr. Alexander Spengler, a German doctor, who settled at Davos about the middle of last century, was the first to make a practical application of the method, and to supply from his own practice and experience the beginnings of the data on which the high-mountain treatment of phthisis is based. In the course of his practice in the then almost unknown valley of Davos he was struck both by the fact that the inhabitants of this high region (over 5,000 feet above sea level) enjoyed almost an immunity from consumption, and that those persons who came up from the lowlands suffering from the disease, rapidly and thoroughly improved in health. So impressed was he by these observations that he induced several sufferers from the complaint to try the effect of the climate; the experiments were entirely successful, and this was the beginning of Davos as a health resort." In the Report, the medical officers in charge are fully convinced that the town of Bâle did a wise thing when it built this sanatorium at Davos instead of at Bâle itself. Dr. E. Nienhou, Medical Director of the Sanatorium, comments on the great industry which has been displayed of late years in the erection of sanatoria in Germany, and his remarks apply with equal force to England and Ireland. "During the past few years," he says, "the sanatorium movement, especially in Germany, has reached very large proportions. Sanatorium doctors, as well as university professors, thus deny the favourable influence of the high-mountain climate, and lay all the weight on the sanatorium treatment alone. Now, however, when it has been discovered that the sanatoria have not accomplished in this combat against tuberculosis all that was promised for them we shall find that opinion will gradually come again to lay stress on the influence of climate."

EDUCATION.

With regard to the education of the medical student, great advances have recently been made. I should advise all students to read carefully the Educational Number of the *British Medical Journal* for September the 5th, 1903, on the advantages and disadvantages of the profession of medicine; there are some valuable

hints in it as to the preservation of the student's own health, and how to fit himself to meet emergencies. It is well worth careful study. It is most important for a young man to make up his mind as to the line of practice he means to adopt, first with regard to the services—the Navy, Army, and Indian Service; and last, though not least, the Poor Law and private practice. Of late the Navy and Army Services became most unattractive, and many teachers, both in England and Ireland, advised their pupils to avoid them, and seemingly with the best results, for on p. 487 in the *Brit. Med. Journal* you will find the following:—"We are glad to learn that in the last two years much energy has been devoted to improving this Service (Army Medical). In order to consider the necessary steps and to assist the Secretary of State an Advisory Board has been created. Some of the most eminent civilian medical authorities have given to it their voluntary services and much of their time. Sir Frederick Treves expressed his belief that the Army Medical Service would be made 'the finest Service in the world in time,' when reforms in contemplation could be carried out." In the Navy and Indian Medical Services many and great improvements have been made, so that we may now look to the Services as a career in life for the best men in our profession.

Many men must stay at home, and therefore it becomes a duty to endeavour to make the home career as good as possible. I am told by some that they live very happy lives in the country. For myself I entirely agree with the man who said: "My dear sir, the country is a delightful place to spend a day or two; but show me any place in the country where you can have the comfort and security of the paving stones." Much useful advice was given the other day by my friend Mr. Tobin in his Introductory Address when opening the Session at St. Vincent's Hospital about the Poor Law Medical Service. But wherever you may cast your lot always bear in mind that you are gentlemen, and cultivate those great virtues—reverence and hopefulness—which Sir Dyce Duckworth urges so strongly in his great Address in Liverpool on the occasion of inaugurating the first Autumn Session of the Faculty of Medicine in the new University, reported in *British Medical Journal* for the 3rd of October, 1903. I will quote a few passages from it. He says: "I address many amongst you who are now at the outset of a career in medicine. To equip yourselves fittingly for that profession will demand some knowledge of the several sciences on which the science and art of medicine are based. I say some

knowledge, for you cannot in the nature of things become expert as students in any one of them. Medicine has been well termed 'a jealous mistress'; and if you are tempted to linger by the way in undue prosecution of one or other of the preliminary scientific studies you may be sure that you will lose your balance and never attain to excellence in practical medicine. The modern curriculum while demanding adequate knowledge, yet affords none too much time for the work to be done. You may never venture to relax your efforts from to-day, till such time as you cease to face your examiners; and it should be your earnest endeavour to be ready for each appointed examination that awaits you. Those who have experience as examiners know well the difference between candidates who have had the benefit of a liberal education before they entered upon medical study. . . . As with the literary, so with the preliminary scientific part of your training, both should be accomplished before entering on the direct studies in medicine, and the tendency now and for the future is to remove the scientific work from the hospital schools altogether, and to relegate it to late school-life, or the first academic year in a University. In thus recasting the curriculum the student is set free to devote his whole time and energy to learning his profession, and enabled to utilise to the full the opportunities afforded by his medical teachers and his hospital." . . . He then goes on to say: "The history of medicine has been too little taught and studied in England, and some measure of the failure to render due reverence to the work of the past is probably due to ignorance of it. . . . I venture to suggest that in all examinations for the Doctorate in Medicine some part should relate to the History of Medicine. This subject could hardly be dealt with in any previous examinations. Such studies as I have just urged will certainly tend to show you which way your genius lies, and you will come to agree with Kingsley, who declared that he had no respect for genius where there was no strength and steadiness of character to support it. Let me add to all this, and inculcate the reverence that is everywhere due to the body of man in life or in death, whether in your daily intercourse in the world or in your relations with the sick, and especially in your studies in anatomy and pathology. In few vocations are men more compelled to revere and respect our common humanity than in ours; and we are never permitted to forget that our bodies, whether in vigour or in decay and repulsiveness, are designed to be temples of the Holy Ghost."

WEST AFRICAN MEDICAL STAFF.

THE following information for the use of candidates for appointments in this Corps has been issued, as a Fourth Edition, by the Colonial Office, under date August 18, 1903 :—

1. The medical services of the West African Colonies and Protectorates (viz., the Gambia, Sierra Leone, the Gold Coast, Lagos, Southern Nigeria, and Northern Nigeria) form one service under the above name. All the medical officers for the service are selected by the Secretary of State for the Colonies, and are on one list for employment and promotion.

SALARY AND ALLOWANCES.

2. The grades and salaries of medical officers are shown in the following table :—

Grades	Gold Coast, Southern Nigeria, Northern Nigeria			Sierra Leone, Lagos			Gambia		
	Minimum Salary	Annual Increment	Maximum Salary	Minimum Salary	Annual Increment	Maximum Salary	Minimum Salary	Annual Increment	Maximum Salary
	£	£	£	£	£	£	£	£	£
Principal Medical Officer -	1,000	50	1,200	800	50	1,000	—	—	—
Deputy Principal Medical Officer	700	25	800	—	—	—	—	—	—
Senior Medical Officers -	600	20	700	600	20	700	500	20	600
Medical Officers -	400	20	500	400	20	500	400	20	500

3. The allowances are as follows :—

(a) *Duty Pay*.—A Deputy Principal Medical Officer or Senior Medical Officer receives duty pay at the rate of £100 a year while acting for the Principal Medical Officer.

In the Gambia a Medical Officer while acting for the Senior Medical Officer in charge of the Medical Department receives duty pay at the rate of £50 a year.

Duty pay at the rate of £60 a year is also paid (1) to each Deputy Principal Medical Officer or Senior Medical Officer while employed in Ashanti or the Northern Territories of the Gold Coast, and

(2) to not more than two officers of either of those ranks in Northern Nigeria, when similarly employed in outlying districts, at the discretion of the High Commissioner.

(b) *Horse or Hammock Allowance.*—An allowance of 2s. 6d. a day is paid to every medical officer for personal conveyance while on duty at his station, for any periods during which he was required by Government to keep, and has actually kept, a horse, carriers, &c., for the purpose.

(c) *Transport of Stores.*—The Government carries free of cost a reasonable amount of stores for every medical officer, the amount in each case being fixed by the local Government.

(d) *Travelling.*—Medical and other officers travelling on duty in a Colony or Protectorate are entitled to repayment of any actual out-of-pocket expenses which they may necessarily have incurred. In some cases, in lieu of the repayment of expenses, a travelling allowance is given, which is estimated to cover the average cost of travelling.

(e) *Field or Bush Allowance.*—An allowance of 5s. a day is paid to all medical officers, whatever their rank, while employed in the field or bush, away from recognised stations. Officers, while in receipt of this allowance, are not entitled to any repayment or allowance under (d) above.

(f) *Allowances on a Military Expedition.*—All medical officers, whatever their rank, while employed with a military expedition, will be paid an allowance of 10s. a day; and they will also be given free rations, or an allowance of 3s. a day in lieu of rations, whenever other officers employed with the expedition are given free rations or an allowance in lieu of rations. While in receipt of these allowances medical officers will not be entitled to any repayment or allowance under (d) and (e) above.

(g) *Outfit Allowance.*—An allowance of £12 is paid to every medical officer before his departure on first appointment for the purchase of camp outfit (*see* under "Outfit").

(h) *Special Allowances.*—Allowances varying in amount up to 10s. a day are paid to medical officers detailed for certain special duties (*e.g.*, sanitary duties in large towns, the charge of laboratories for research, &c.).

Medical officers when acting as Assistant District Commissioners on the Gold Coast, in addition to performing their medical duties, receive duty pay at the rate of £80 a year, and when acting as District Commissioners in Ashanti at the rate of £140 a year.

LEAVE OF ABSENCE, PASSAGES, ETC.

4. Medical officers are in general subject to the Colonial Regulations in force for the time being, Chapter XVIII. of which contains the rules specially applicable to West Africa. A brief summary of these rules is given here for convenience.

5. The ordinary tour of residential service is one year, followed by leave with full pay during the voyages to and from England and for four or two months clear in England, according as the officer is returning for further service in West Africa or not. If an officer is detained beyond the year, additional leave is given with full pay for ten or five days in respect of each completed month beyond twelve, according as he is returning or not. If he is invalided before the end of the year, the leave with full pay is for the voyages and for ten or five days in respect of each completed month, according as he is returning or not. Leave granted on the understanding that an officer will return is known as "return leave," and any pay drawn in respect of such leave is liable to be refunded if he does not return.

6. Leave may be extended for a limited period with half or no pay on the ground of ill health, or without pay on other grounds.

7. Free passages are given to all officers who are granted leave as above. A free passage is also given on first appointment, subject to the officer signing an agreement under which he is liable to refund its cost if he relinquishes his appointment for any other reason than physical or mental infirmity, or is removed for misconduct, within three years from the date of his arrival in West Africa.

8. Half pay is given during the voyage out on first appointment.

9. Fuller information on these points will be found in the Colonial Regulations, which are published in the annual Colonial Office List (Messrs. Waterlow & Sons, Great Winchester-street, E.C., price 10s. 6d.), or may be consulted on application at the Colonial Office; and a copy of Chapter XVIII. may also be obtained free on application to the Colonial Office.

GENERAL CONDITIONS OF ENGAGEMENT.

10. Every medical officer, unless exempted from this condition on account of previous Colonial service or for any other reason is engaged in the first instance on probation for one year from the date of his arrival in West Africa. If it is established to the

satisfaction of the Governor or High Commissioner that an officer is not qualified for efficient service in West Africa, the Governor or High Commissioner, subject to the confirmation of the Secretary of State, will have full power to cancel his appointment at any time within the year without giving him any further compensation than a passage back to England, which will be granted only at the discretion of the Governor or High Commissioner.

11. At the end of the year of probation the officer may, on the recommendation of the Governor or High Commissioner, subject to the approval of the Secretary of State, be confirmed in his appointment with effect from the date of his first embarkation from England for West Africa ; and unless it is expressly continued in this manner, the appointment will cease at the end of the year.

PRIVATE PRACTICE.

12. All medical officers, except the Principal Medical Officer, in each Colony or Protectorate, are allowed to take private practice, provided that it does not interfere with the faithful and efficient performance of their official duties, but it is within the power of the Governor or High Commissioner to withdraw or suspend the privilege in such places and for such periods as he may consider desirable.

OUTFIT.

13. *Instruments and drugs* and all medical appliances are supplied by the Government. Medical officers are not required to provide themselves with microscopes, which are supplied, when necessary, by the Government.

14. *Camp outfit* on the following scale must be taken out by every medical officer, and an allowance of £12 is given for its purchase :—

Camp table, 2½ feet by 2 feet.

Camp bed (straps, &c.).

Hurricane lamp (with spare chimneys and wicks).

Enamelled basin.

Camp chair.

Portable bath.

Berkefeld filter.

Stable bucket.

Mosquito curtains.

Tents are supplied by the Government, if required.

15. *Clothing, &c.*—The following are recommended :—

Thin gauze vests and drawers.

One or two pairs of thick Jaeger drawers.

Thin flannel shirts.

White shirts, turned-down collars for wear at head-quarters
(not required in Northern and Southern Nigeria).

Merino socks.

One or two pairs of woollen socks.

Thick woollen cholera belts.

Thin flannel pyjamas (and two thick).

Flannel dressing-gown.

Medium great-coat.

Light tropical mackintosh. The seams should be sewn
throughout, as those fastened only with composition fall
to pieces after a few weeks.

Umbrella—either white linen with green lining, or ordinary
black with white cover.

Shooting boots.

A pair of high india-rubber rain boots for crossing swamps,
&c., is useful.

Brush, comb, shaving-brush, razor, glass, tooth brushes,
powder, sponge, soap, candles, needles and thread, &c.

16. *Miscellaneous outfit* :—

Table-ware (not required in Southern Nigeria)—plates,
dishes, glass, knives, forks and spoons, cruet, tea and coffee
pot, cups and saucers, jugs, &c. Table cloths, napkins,
dusters, glass cloths.

Corkscrew, turnscrew, tin-opener.

Kitchen ware (not required in Southern Nigeria)—kettles,
cooking utensils, towelling.

Camp canteen.

Water-bottle.

Waterproof sheet.

Thick blankets.

Towels.

Sheets (if desired).

Pillow cases.

Good watches or jewellery should not be taken out. A
small clock is useful.

Lounge chair (for voyage).

Shot gun, ammunition, hunting knife and belt, &c., if desired.

Tin boxes, to hold 65 lbs. or less, are better than wooden boxes or portmanteaux. Transport is effected by means of native carriers, whose average load is 50 lbs. each.

N.B.—A complete set of winter clothes and winter under-clothing may be required on board ship if an officer's leave of absence takes him to England in the cold weather. Arrangements might preferably be made for these to meet the officer during the voyage, as they are apt to get destroyed if kept unused in West Africa.

17. The above lists are only intended as a guide to requirements. Many articles can be obtained in West Africa, though at a rather higher price than in England. As a general rule it is desirable for officers to take out as little as possible with them, but circumstances vary, and a newly appointed officer should always, if possible, consult someone who has recently been on the Coast. If he applies to the Colonial Office he will be placed in communication with some officer at home on leave of absence, who will be able to advise him what to do.

UNIFORM.

18. In Northern and Southern Nigeria there is a uniform prescribed for medical officers in common with other civil officers, particulars of which can be obtained from the Colonial Office. In the other Colonies medical officers at present wear no special uniform.

QUARTERS.

19. At all the recognised stations free single quarters, furnished in most cases, are provided for medical officers, or an allowance is paid in lieu of quarters. Information as to the nature of the quarters, the amount of furniture supplied, &c., may be obtained on application at the Colonial Office.

PENSIONS AND GRATUITIES.

20. The ordinary regulations relating to pensions and gratuities for West African service can be consulted at the Colonial Office, but for convenience a brief though necessarily incomplete account of them is given here.

21. On attaining the age of 50 years, or after 18 years' service (of which at least 12 must have been residential), an officer is qualified for a pension calculated at $\frac{1}{10}$ of the last annual salary for each year of service.

22. If invalided after a minimum of seven years' service, he is qualified for a pension calculated at the same rate.

23. If invalided before completing seven years' service, he is qualified for a gratuity not exceeding $\frac{3}{4}$ of a month's salary for each six months of service ; provided that he has been confirmed in his appointment, and that he is specially recommended by the Governor or High Commissioner for such gratuity.

24. For the purpose of calculating the *amount* of these pensions and gratuities, leave of absence without salary is not counted, while leave with half salary is counted half.

25. In addition to the ordinary regulations, an officer of the West African Medical Staff enjoys the following special privilege. At the end of nine years (of which not less than six must have been residential) he will be permitted to retire with a gratuity of £1,000, or at the end of 12 years (of which not less than eight must have been residential) with a gratuity of £1,250. All claims to pension are, however, forfeited on the receipt of such a gratuity.

APPLICATIONS FOR APPOINTMENTS.

26. Applicants for appointment as Medical Officers in the West African Medical Staff (the higher grades will usually be filled by promotion from the lower) must be British subjects of European parentage, and between 25 and 35 years of age ; they must possess a complete double qualification, and must be on the Medical Register.

27. Preference will be given to unmarried candidates. Married ones are not excluded ; but it should be remembered that passages for wives and children are not provided by the Government, that houses for them are rarely available, and that, except in the case of an officer dying on active service, no provision is made by the Government for a widow or orphans.

28. Candidates should, in the first instance, apply in writing to the Assistant Private Secretary of State, Colonial Office, Downing-street, London, S.W., stating generally their qualifications and enclosing a certificate of birth. A form of application will then be forwarded to them to fill up and return together with testimonials.

29. Candidates whom it is proposed to select for appointment will have to be medically examined by one of the medical advisers of the Colonial Office (or, in the case of those residing in a Colony, by a medical officer appointed by the Colonial Government), and

no appointment will be made unless the candidate is declared to be physically fit for service in West Africa.

30. Candidates for medical appointments in West Africa are allowed to express a preference for any particular Colony or Protectorate, and their wishes in this respect will be borne in mind and met as far as possible, but they are liable to be posted in the first instance, or transferred afterwards if necessary, to any other West African Colony or Protectorate at the discretion of the Secretary of State.

31. Transfers from one Colony or Protectorate to another will, however, be made as seldom as possible, and will usually be restricted to the following cases :—

(i.) If an officer is appointed in the first instance as supernumerary to the establishment in one Colony, or Protectorate, pending the occurrence of a vacancy in another Colony or Protectorate.

(ii.) If an officer applies himself for transfer in the same grade.

(iii.) On promotion.

(iv.) Temporary transfers in cases of emergency.

INSTRUCTION IN TROPICAL MEDICINE.

32. Every candidate selected for appointment will, unless the Secretary of State decides otherwise, be required to undergo a course of instruction for two or three months either at the London School of Tropical Medicine, Royal Victoria and Albert Docks, E. (near Connaught-road Station), or at the Liverpool School of Tropical Medicine at University College, Liverpool. The cost of the tuition, fees, board, and residence during such instruction, amounting to a maximum of £48 8s. 10d., for three months, will be borne by the Government; and a daily allowance of 5s. (but no pay) will be paid to each candidate during the course, and may be continued subsequently up to the date of embarkation. These payments will be made subject to the candidate's signing an agreement by which he will be bound to refund them (1) if he declines to accept an appointment in any of the Colonies or Protectorates for which he may be selected by the Secretary of State, (2) if he fails to obtain the certificate referred to in the next paragraph, or (3) if he relinquishes the West African Service for any other reason than mental or physical infirmity, or is removed for misconduct, within three years of the date of his arrival in West Africa.

33. Every candidate sent to either of the schools is required to obtain a certificate showing that he has satisfied the school authorities with regard to his regularity of attendance, progress, and proficiency, and for this purpose to undergo any examinations which they may consider necessary; and if he fails to obtain such a certificate, he may not only be called upon to refund the payments made to him or on his behalf (as provided in the previous paragraph), but his selection for the West African Medical Staff may also be cancelled.

34. Half pay begins from the date of embarkation.

35. If a medical officer has for any reason not taken a course of instruction prior to appointment, he is required to take it during his first leave of absence, and to obtain the certificate before he can be confirmed in his appointment. In this case the tuition fees, but not the fees for board and residence, will be paid by the Government, and no daily allowance will be given in addition to pay.

36. The seniority of Medical Officers is reckoned generally from the date of their embarkation in this country, but in the case of those who have taken a course of instruction before proceeding to West Africa, a period is added equal to the period during which they have actually been under instruction. This addition, however, is made only for purposes of promotion, and does not affect pensions, gratuities, or increments of salary. Seniority alone does not, moreover, give any claim to promotion.

LITERARY NOTE.

WE are informed by Dr. S. W. Kelley, of Cleveland, Ohio, U.S.A., that the Saalfield Publishing Company are about to issue under the title of "The Doctor's Recreation Series," twelve octavo volumes of selected works, which—though not strictly-speaking medical books—cannot fail to interest medical men. The titles of the twelve volumes are "The Doctor's Leisure Hour," "The Doctor's Red Lamp," "In the Year 1800," "A Book about Doctors," "The Doctor's Window," "Passages from the Diary of a Late Physician," "The Inn of Rest," "Doctors of the Old School," "The Shrine of Esculapius," "The Doctor's Domicile," "A Cyclopædia of Medical History," and "The Doctor's Who's Who." It is intimated that the first five volumes of the series will be published in the course of this autumn.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D., Univ. Dubl ;

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VITAL STATISTICS.

For four weeks ending Saturday, October 10, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending October 10, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 17.9 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, October 10, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Sept. 19	Sept. 26	Oct. 3	Oct. 10			Sept. 19	Sept. 26	Oct. 3	Oct. 10	
22 Town Districts	18.3	18.2	17.4	17.9	18.0	Lisburn -	13.6	31.8	9.1	13.6	17.0
Armagh -	0.0	13.7	20.6	20.6	13.7	Londonderry	13.9	12.6	20.2	21.4	17.0
Ballymena	9.6	9.6	9.6	14.4	10.8	Lurgan -	8.9	8.9	22.1	17.7	14.4
Belfast -	17.7	15.3	16.4	18.2	16.9	Newry -	12.6	21.0	21.0	12.6	16.8
Clonmel -	10.3	35.9	5.1	5.1	14.1	Newtown- ards	11.4	17.2	5.7	11.4	11.4
Cork -	21.2	24.0	15.8	21.9	20.7	Portadown -	25.8	20.7	31.0	15.5	23.2
Drogheda -	16.3	20.4	20.4	16.3	18.4	Queenstown	26.4	13.2	19.8	19.8	19.8
Dublin (Reg. Area)	19.5	21.7	18.3	19.7	19.8	Sligo -	4.8	14.4	19.2	22.8	16.8
Dundalk -	4.0	43.9	0.0	8.0	14.0	Tralee -	15.9	0.0	21.1	0.0	9.8
Galway -	42.7	15.5	27.2	11.7	24.3	Waterford -	13.6	3.9	19.5	9.7	11.7
Kilkenny -	34.3	0.0	9.8	14.7	14.7	Wexford -	9.3	9.3	14.0	14.0	11.7
Limerick -	26.0	16.4	23.2	10.9	19.1						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, October 10, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in sixteen of the districts to 8.9 in Lurgan—the 4 deaths from all causes registered in that district including one from scarlet fever and one from diarrhoea. The 125 deaths from all causes registered in Belfast include one from measles, 2 from scarlet fever, 2 from whooping-cough, one from diphtheria, 4 from enteric fever, and 8 from diarrhoeal diseases.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, October 10, amounted to 190—105 boys and 85 girls; and the deaths to 150—72 males and 78 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 20.7 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the Area, the rate was 19.7 per 1,000. During the forty weeks ending with Saturday, October 10, the death-rate averaged 23.7, and was 2.3 below the mean rate for the corresponding portions of the ten years 1893–1902.

Enteric fever and whooping-cough each caused 2 deaths; scarlet fever, influenza, diphtheria, and cerebro-spinal fever, each caused one death. Four deaths from diarrhoeal diseases were recorded.

Of 41 deaths from tuberculous disease 2 were attributed to tubercular phthisis, 25 to *phthisis*, 4 to tubercular peritonitis, one to *tabes mesenterica*, and 9 to other forms of the disease.

Four deaths were assigned to carcinoma, and 5 to *cancer* (*malignant disease*).

Of 9 deaths from diseases of the nervous system, 5, all of children under one year old, were from *convulsions*.

There were 22 deaths from diseases of the heart and blood vessels.

The deaths from diseases of the respiratory system (17) are equal to an annual rate of 2.3 per 1,000 ; the annual average rate for the corresponding period of the past 10 years is 3.2 per 1,000. The total includes 8 deaths from bronchitis, 5 from broncho-pneumonia, and 2 from *pneumonia*.

The death of an infant was caused by accidental overlying in bed.

In 5 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 3 infants under one year old and the deaths of 2 persons aged 60 years and upwards.

Forty-eight of the persons whose deaths were registered during the week were under 5 years of age (32 being infants under one year, of whom 11 were under one month old), and 30 were aged 60 years and upwards, including 8 persons aged 70 and upwards, of whom 4 were octogenarians.

Seventy-one of the deaths registered during the week occurred in hospitals and other public institutions. Of this number 20 took place in the North Dublin Union Workhouse and 14 in the South Dublin Union Workhouse.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin ; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District ; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District ; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District ; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District ; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast :—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended October 10, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	Sept. 19	-	-	-	8	-	-	5	-	2	17	21	-	-	-	53
	Sept. 26	-	-	-	15	1	-	7	-	-	14	7	-	-	-	47
	Oct. 3	-	3	1	8	4	-	1	2	1	27	19	2	-	1	66
	Oct. 10	-	1	-	6	2	-	4	-	-	23	18	1	-	-	55
Rathmines and Rathgar Urban District	Sept. 19	-	-	-	-	-	-	2	-	-	1	1	-	2	-	4
	Sept. 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Oct. 3	-	-	-	2	-	-	1	-	-	-	-	-	1	-	4
	Oct. 10	-	-	-	-	-	-	2	-	-	3	-	-	-	-	5
Pembroke Urban District	Sept. 19	-	-	-	2	-	-	-	-	-	1	-	-	1	-	4
	Sept. 26	-	-	-	4	-	-	-	-	1	2	1	-	2	1	11
	Oct. 3	-	-	-	8	-	-	-	-	-	1	1	-	-	-	10
	Oct. 10	-	-	-	2	-	-	1	-	-	-	1	-	2	-	6
Blackrock Urban District	Sept. 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sept. 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oct. 3	-	-	-	4	-	-	-	-	-	1	-	-	-	-	5
	Oct. 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kingstown Urban District	Sept. 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sept. 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oct. 3	-	-	-	1	-	-	-	-	-	-	1	-	-	-	2
	Oct. 10	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
City of Belfast	Sept. 19	-	-	-	21	-	-	5	1	13	30	10	-	-	-	80
	Sept. 26	-	-	-	22	-	-	3	-	16	18	9	1	-	-	69
	Oct. 3	-	-	-	19	-	-	2	1	12	15	12	-	-	-	61
	Oct. 10	-	-	-	24	-	-	2	-	11	25	15	-	-	-	77

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, October 10, 1903, one case of small-pox remained under treatment in hospital.

Nine cases of scarlet fever were admitted to hospital, 10 cases were discharged, and 113 cases remained under treatment at the close of the week.

Three cases of typhus fever were admitted to hospital during the week, one case was discharged, and 10 cases remained under treatment at its close.

Four cases of diphtheria were admitted to hospital, 6 were discharged, and 11 remained under treatment at the close of the week.

Fifteen cases of enteric fever were admitted to hospital, 12 were discharged, there were 2 deaths, and 67 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, 8 patients were discharged, and 11 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, October 10, in 76 large English towns, including London (in which the rate was 14.5), was equal to an average annual death-rate of 15.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 16.0 per 1,000, the rate for Glasgow being 15.5, and for Edinburgh 16.5.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of September, 1903.

Mean Height of Barometer,	-	-	-	29.946 inches.
Maximal Height of Barometer (14th, at 9 p.m.),				30.561 „
Minimal Height of Barometer (10th, at 5 30 p.m.),				28.881 „
Mean Dry-bulb Temperature,	-	-	-	54.3°.
Mean Wet-bulb Temperature,	-	-	-	52.3°.
Mean Dew-point Temperature,	-	-	-	50.3°.
Mean Elastic Force (Tension) of Aqueous Vapour,				.368 inch.
Mean Humidity,	-	-	-	86.8 per cent.
Highest Temperature in Shade (on 1st),				67.2°.
Lowest Temperature in Shade (on 15th),				37.8°.
Lowest Temperature on Grass (Radiation) (on 15th and again on 16th),	-	-	-	34.3°.
Mean Amount of Cloud,	-	-	-	55.0 per cent.
Rainfall (on 17 days),	-	-	-	3.397 inches.
Greatest Daily Rainfall (on 10th),	-	-	-	.966 inch.
General Directions of Wind,	-	-	-	S., S.S.E., S.E.

Remarks.

So far as wind and rain are concerned, September proved a fitting sequel to the summer months of 1903. The rainfall—3.397 inches—was 53 per cent. in excess of the average, and the wind reached gale-force on as many as 6 days. Also a remarkably cold spell for the time of year followed a disastrous storm on the 10th, and lasted until the 16th inclusive. Subsequently temperature recovered completely under the influence of southerly winds

and remained high to the end of the month, the mean temperature of which in consequence showed little or no variation from the normal. A redeeming feature in the month was the amount of bright sunshine, the duration of which was estimated at 166 hours, or 44 per cent. of the possible duration, equal to a daily mean of 5.5 hours, compared with a twenty years' mean of 143.4 hours recorded at the Ordnance Survey Office, Phoenix Park, or 38 per cent. of the possible duration. At night also the "harvest moon" was much in evidence, and very perfect lunar rainbows were seen on the 4th and 8th.

The most prevalent winds were S., S.S.E., and S.E.

In Dublin the arithmetical mean temperature (56.0°) was slightly above the average (55.9°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 54.3°. In the thirty-eight years ending with 1902, September was coldest in 1886 and 1892 (M. T. = 53.0°), and warmest in 1865 (M. T. = 61.4°) and 1898 (M. T. = 60.2°). In 1902 the M. T. was 56.1°.

The mean height of the barometer was 29.946 inches, or 0.036 inch above the corrected average value for September—namely, 29.910 inches. The mercury rose to 30.561 inches at 9 p.m. of the 14th, having fallen to 28.881 inches at 5 30 p.m. of the 10th. The observed range of atmospheric pressure was, therefore, 1.680 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 54.3°, or only 2.5° below the value for August, 1903. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .476), the mean temperature was 55.7°, or 0.1° above the average mean temperature for September, calculated in the same way, in the thirty years, 1871–1900, inclusive (55.6°). The arithmetical mean of the maximal and minimal readings was 56.0°, compared with a thirty years' average of 55.9°. On the 1st the thermometer in the screen rose to 67.2°—wind, S.W.; on the 15th the temperature fell to 37.8°—wind, E. The minimum on the grass was 34.3° on both the 15th and the 16th.

The rainfall was 3.397 inches, on 17 days. The average rainfall for September in the thirty-five years, 1866–1900, inclusive, was 2.220 inches, and the average number of rainy days was 15. In 1871 the rainfall was very large—4.048 inches on, however, only 13 days; in 1896 no less than 5.073 inches fell on 23 days, establishing a record rainfall for September. On the other hand,

in 1865, only .056 inch was measured on but 3 days. In 1902, 2.969 inches fell on 16 days.

High winds were noted on as many as 13 days, and attained the force of a gale on 6 occasions—the 5th, 8th, 10th, 18th, 21st, and 28th. The atmosphere was foggy only on the 15th. A solar halo was observed on the 27th. Lunar rainbows were seen on the nights of the 4th and 8th. Hail fell on the 11th, and thunder and lightning occurred on the night of the 26th.

The rainfall in Dublin during the nine months ending September 30th amounted to 25.269 inches on 174 days, compared with 21.425 inches on 149 days in the same period of 1902, 18.070 inches on 124 days in 1901, 24.394 inches on 156 days in 1900, 20.948 inches on 138 days in 1899, only 10.968 inches on 112 days in 1887, and a thirty-five years' average of 19.880 inches on 145 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 3.950 inches on 20 days, compared with 3.995 inches on 12 days in 1902, 5.420 inches on 19 days in 1901, and only .695 inch on but 4 days in 1900. The heaviest fall in 24 hours was .890 inch on the 10th. At Knockdolian the rainfall since January 1st, 1903, has been 27.050 inches on 154 days, compared with 27.156 inches on 123 days in 1902, 25.105 inches on 119 days in 1901, 30.021 inches on 140 days in 1900, 28.440 inches on 139 days in 1899, and 19.688 inches on 124 days in 1898.

The rainfall at Cloneevin, Killiney, amounted to 3.60 inches on 18 days, the maximal fall in 24 hours being .97 inch on the 10th. The average September rainfall at this station in the 18 years, 1885–1902, inclusive, was 2.061 inches on 13 days. Since January 1, 1903, 24.03 inches have fallen on 164 days.

Dr. Arthur S. Goff returns the rainfall at Lynton, Dundrum, Co. Dublin, at 4.33 inches on 21 days compared with 5.03 inches on 18 days in 1901, and 4.09 inches on 19 days in 1902. The greatest daily fall was .92 inch on the 10th. The mean temperature in the shade was 55.3°. The screened thermometers rose to 65° on the 1st, and fell to 39° on the 15th and also on the 16th. Hail fell on the 9th, and thunder occurred on the 26th.

In the City of Cork the rainfall was 4.07 inches on 18 days, or 1.37 inches above the average for September. The rainfall was greatest on the 4th, when 0.67 inch was measured. In the 9

months ended September 30, the rainfall was 40.64 inches, or 14.25 inches above the average.

At the Railway Hotel, Recess, Connemara, Co. Galway, 8.862 inches of rain fell on 19 days in September. This large amount included 2.920 inches on the 10th, 1.152 inches on the 8th, and .820 inch on the 7th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 56.3°, being 1.7° below the average for September during the previous five years. The extremes were—highest, 67.5° on the 1st; lowest, 43° on the 14th. At Bournemouth the mean was 58.8°, the extremes being—highest, 74° on the 29th and 30th; lowest, 42° on the 12th and 15th. The mean daily range of temperature at Kingstown was 10.6°, and at Bournemouth, 13.5°. The mean temperature of the sea at Sandycove bathing-place was 55.3°, being 2.7° below the average, and the absolute lowest for September during the previous 5 years. The rainfall was 3.51 inches on 19 days at Kingstown, and 1.83 inches on 14 days at Bournemouth. The Mourne Mountains were visible from Kingstown on the 3rd. The total duration of bright sunshine was 159.5 hours at Kingstown, 165.8 hours at Phoenix Park, 127.7 at Valentia, 149.8 hours at Parsonstown, 153 hours at Southport, and 142.5 hours at Eastbourne.

TRIGEMIN, A NEW ANALGESIC.

THIS new remedy is a chemical derivative from pyramidon, produced by the action of butyl-chloral-hydrate on the latter. Clinical tests with this drug have lately been made by Overlach (*Berl. klin. Woch.*, Vol. 40, No. 35), which seem to demonstrate that it has a specific action on the painful affections of the cranial nerves. It does not produce any gastric irritation, and has no effect on the heart, as the two constituents neutralise each other. It can, therefore, be employed in organic heart disease. Favourable effects were observed in headaches from exertion, in those from influenza alcohol, migraine, &c. It is also of particular value in occipital neuralgia and facial neuralgia, both in extensive and localised types, and in toothache. The adult dose is from 0.5 to 1.2 grammes; a moderate dose once or twice daily is usually sufficient. The preparation is a German one, manufactured by Lucius & Brüning, Hoechst-am-Main.—*Medical News*, New York, Oct. 10, 1903.

PERISCOPE.

THE KING'S SANATORIUM.

DR. CHARLES REINHARDT contributes a remarkable article to the October number of *The Health Resort* on "The King's Sanatorium, a Waste of Lives and Money," in which he criticises in very adverse terms the decision of the King's Advisory Committee regarding the disposal of the sum of £200,000 placed in His Majesty's hands nearly two years ago by Sir Ernest Cassel "for charitable or utilitarian purposes," and allocated by His Majesty's direction to the erection in England of a sanatorium for tuberculous patients. An announcement appeared in the *British Medical Journal* of September 19th, 1903, that the digging for the foundations of the sanatorium had been begun on the site at Easebourn, near Midhurst, in Sussex (a few miles south of Haslemere); that the building will cost between £50,000 and £60,000; and that it will probably be ready for the reception of patients within two years time. Dr. Reinhardt takes this as his text for a denunciation of the pavilion system as opposed to the chalet system of open-air treatment. He bases his objections to the former method on the greater capital expenditure, and on the delay involved in building, as well as on the alleged inferiority of results obtained to those obtained by treating patients in separate huts. He states that "the sum of £200,000 placed at the King's disposal by Sir Ernest Cassel might have been utilised for the erection of ten sanatoria on the chalet principle in as many different parts of the country, each to provide for 100 patients. The total cost, including purchase of the freehold of the necessary grounds and the equipment of furniture, would have been covered by £10,000 per sanatorium, which works out at the rate of £100 per bed. Therefore, only half the capital sum would have been absorbed, leaving £100,000 to be invested at interest to provide an annual income of £4,000, which presumably, by means of public subscription and small contributions from the patients or their friends, could have been augmented to such an extent as to provide for maintenance. The whole of these ten sanatoria might have been erected and equipped within six months of the receipt by the King of Sir Ernest Cassel's gift; therefore, they would have already been at least a year in full working order, during which time each bed might

have been occupied in turn by not less than three patients. Therefore, 3,000 persons might have been already treated, and provided that care was exercised in the selection of the cases, advanced and hopeless ones being refused as unsuitable, at least 80 per cent. of cures might have been effected. Thus, no less than 2,600 persons might already have been returned to their employment cured; and during the two years that must elapse before the Haslemere Palace will be ready a further 5,200 cases might be successfully treated, making a grand total of 7,800 persons who might have been saved from suffering and whose lives might have been usefully prolonged. That so much benefit should have been lost is bad enough; but worse remains, for even when the time comes for the reception of patients at the King's Sanatorium, the difference between the numbers to whom treatment will be afforded and those who might have benefited will still remain as one to ten, and the unfortunate example will doubtless be so far-reaching in its effects that one is staggered by the awful consequences which careful contemplation of the subject compels one to realise." Opinions will differ as to the value to be attached to conclusions drawn from these figures. They seem to us to have been put forward much too dogmatically, and we much regret that Dr. Reinhardt has expressed his convictions with so much vehemence.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Tabloid" Iron, Arsenic, and Digitalin.

THIS is the most recent addition to the long list of these preparations made by Messrs. Burroughs, Wellcome & Company. Each tabloid contains—Soluble phosphate of iron, gr. 3 (0.194 gm.); arsenious acid, gr. $\frac{1}{100}$ (0.00065 gm.); digitalin, gr. $\frac{1}{100}$ (0.00065 gm.). This combination has been found very useful as a chalybeate tonic and cardiac stimulant. The soluble phosphate of iron employed corresponds to the preparation recognised by the United States Pharmacopœia, and possesses the advantages of solubility and freedom from any tendency to cause constipation. From one to three, according to circumstances, may be swallowed with water, with or after food. The "tabloid" of iron, arsenic, and digitalin is issued in bottles of 25 and 100.

In Memoriam.

SIR GEORGE FREDERICK DUFFEY, KNT.,

M.D. UNIV. DUBL. ;

FELLOW AND PAST-PRESIDENT, R.C.P.I. ;

CONSULTING PHYSICIAN TO THE ROYAL CITY OF DUBLIN HOSPITAL.

WE have to record with profound regret the death, on Tuesday, October 13, 1903, at his residence, 30 Fitzwilliam-place, Dublin, of SIR GEORGE F. DUFFEY, M.D., Past President of the Royal College of Physicians of Ireland. For several months past the health of this gifted and most popular physician had been a source of the gravest anxiety to his family and many friends. Consultations between London and Dublin Consultants were held from time to time, and the consensus of medical opinion was that the malady from which he suffered was an aggravated and complicated form of locomotor ataxy. His illness, which was of a singularly distressing nature, borne with marvellous patience and fortitude, defied the best efforts of medical science and the devoted and unceasing care of his family. The end came peacefully and painlessly at the last.

GEORGE FREDERICK DUFFEY was born at 5 Upper Fitzwilliam-street, Dublin, on the 20th of June, 1843, so that at the time of his death he had only just entered upon his sixty-first year. His father, John Duffey, Esq., was a barrister-at-law. He graduated in the University of Dublin in Arts in 1863, and in Medicine and Surgery in 1864. He took the higher degree of Doctor of Medicine in the University in 1871. During his undergraduate career, as a student of medicine in the School of Physic in Ireland, he won the Medical Scholarship and the Senior Medical Exhibition. Shortly after obtaining his qualifications he became a member of what is now the Royal Army Medical Corps, obtaining first place at the Entrance Examination to Netley Army Medical School. He served as Assistant-Surgeon in the 1st Battalion of the 24th Regiment at home, and also on the Mediterranean station, until 1871, when he resigned his commission and settled in Dublin. A few years later he learned with sorrow the news of the annihilation of his old regiment on the fatal field of Isandhlwana in the Zulu War of 1879.

In 1876 SIR GEORGE DUFFEY was appointed physician to

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Mercer's Hospital, and lecturer on *Materia Medica* in the Carmichael College of Medicine and Surgery. Six years later, in 1882, he resigned his position at Mercer's Hospital on being elected physician to the Royal City of Dublin Hospital. This post he continued to fill with consummate success, and after his enforced resignation had been accepted with the greatest regret, he was unanimously appointed consulting physician to his old hospital, an appointment which by a strange coincidence, was gazetted only on Monday, October 12, 1903—the very eve of his death. For many years he was also consulting physician to the Molyneux Asylum and National Institution for the Female Blind of Ireland, Leeson Park, Dublin.

During his active and busy life SIR GEORGE filled many appointments in addition to those already named. Thus, he acted as examiner in *Materia Medica* in the Queen's University before its dissolution, and also as extern examiner in the Institutes of Medicine in the University of Dublin. For several years he acted as Inspector of Examinations for the General Medical Council, as well as Visitor of the Examinations of the Pharmaceutical Society of Ireland on behalf of His Majesty's Privy Council.

No greater proof of his marvellous tact and *savoir faire* can be adduced than the fact that in all the years he held these important and delicate posts he never made an enemy or raised the faintest adverse criticism of his findings and suggestions.

When the Carmichael College of Medicine and the Ledwich School of Medicine were amalgamated with the School of Surgery of the Royal College of Surgeons in Ireland, SIR GEORGE DUFFEY became Professor of *Materia Medica* and Pharmacy in the combined Schools; and this appointment he held to the close of his busy life.

He was admitted a Licentiate in Medicine and Midwifery of the Royal College of Physicians of Ireland in 1871. On St. Luke's Day, 1873, he was elected Fellow of the College, and he was unanimously chosen President on St. Luke's Day, 1896. In the following year he received the well-deserved honour of Knighthood. His services to the College, which delighted to honour him, were unceasing and most valuable, though unobtrusive and unpretentious. By his brother-Fellows he was universally respected and beloved—his name stood amongst them for all that was honourable, faithful and true.

At the Annual Stated Meeting of the College held on the

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Morrow of St. Luke's Day, October 19, 1903, the following resolution was proposed by Dr. J. Magee Finny, seconded by Sir John Moore, and adopted in silence, the President and Fellows standing :—

“Resolved—That at this the first meeting of the College since the death of SIR GEORGE DUFFEY, we, the President and Fellows, desire to place on record our deep regret at the loss the College has sustained by the removal of one of its Fellows and Past-Presidents who was ever loyal to the College and upheld the highest principles of our Profession. Regular in his attendance, painstaking and helpful at Committees, he has left a place it will be hard to fill ; while personally we feel we have lost a genial *confrère* and a generous friend.

“We desire that a copy of this resolution be forwarded to Lady Duffey, with the unanimous expression of our sincere sympathy with her and her family in their bereavement.”

SIR GEORGE was a man of much literary ability, and contributed many valuable papers to the literature of medicine. In 1873 he originated and became the editor of the *Irish Hospital Gazette*, a first-class publication, which was afterwards merged in the *Dublin Journal of Medical Science*. In 1879 he edited and in great measure re-wrote “Handsel Griffith's *Materia Medica and Pharmacy*.” In 1884 he published “*Suggestions for a Plan of taking Notes of Medical Cases*,” a second edition being called for in 1890. Among his many contributions to medical literature may be mentioned a paper on “*Cystic Degeneration of the Kidneys causing Dystocia*” (*Med. Times and Gazette*, 1866), papers on “*Rheumatic Orchitis as a Sequel to Fever*” (1872), “*Iodic Purpura*” (1880), and “*The Uses of Thiocamf*” (1893)—all of which appeared in the pages of this Journal. In the *Transactions of the Royal Academy of Medicine in Ireland* also will be found valuable communications from his pen on “*The Connection of Acute Diabetes with Diseases of the Pancreas*” (1884), “*A Milky Fluid from a Case of Ascites*” (1886), “*Hydatid Cyst of the Pleura*” (1891), “*Laryngeal Necrosis in Enteric Fever*” (1898), “*Stenosis of the Tricuspid, Aortic, and Mitral Orifices*” (1901), &c.

SIR GEORGE'S powers of organisation were marvellous. They were never more conspicuously shown than when—mainly through his energy and tact—the Dublin (or Leinster) Branch of the British Medical Association was founded in the year 1877. It was largely owing to his influence also that the Royal College of Physicians of Ireland lent its countenance to the movement, and extended the hospitality of its splendid Halls

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in Kildare-street to the Dublin Branch. It will be remembered also that SIR GEORGE was Local Honorary Secretary to the great Dublin Meeting of the Association in 1887—when Sir John Banks, K.C.B., the *doyen* of the Medical Profession in Ireland, presided over one of the largest and most representative gatherings of the Profession that had ever taken place. Other offices in the Association held by SIR GEORGE DUFFEY in connection with its annual meetings were Secretary of the Section of Medicine at Cork in 1879, Vice-President of the same Section at Belfast in 1884, and again at Glasgow in 1888, and lastly, President of the Section of Medicine at Carlisle in 1896. In 1901 he was unanimously chosen President of the Dublin Branch, of which he may justly be described as the Founder.

In 1871 SIR GEORGE DUFFEY married Agnes, daughter of the late John Cameron, Esq., of Dublin, and sister of Sir Charles Cameron, Bart., M.D., D.L., for twenty-five years M.P. for Glasgow, of Balclutha, Greenock. His family consisted of two sons and three daughters, but a few years ago a great sorrow fell upon him in the unexpected death of his elder son, Lieutenant George Allan Duffey, who succumbed to yellow fever while serving with his regiment in the West Indies. His younger son, Arthur Cameron Duffey, M.D., is a lieutenant in the Royal Army Medical Corps, and acted as Special Commissioner to the United States on behalf of the Cancer Research Society in 1899. He also served in South Africa in the late war. His second daughter is married to John H. Trevor M'Neill, Esq., B.A., Univ. Dubl., of the Vice-Chancellor's Court.

This is not the place to enter at length into SIR GEORGE'S private character. Suffice it to say that in public and in private life alike he proved himself ever warm-hearted, generous, and sympathetic. He was a consistent and faithful friend, as many can testify from practical experience in times of need. By his death, Irish medicine loses a distinguished ornament, the members of the profession an able and sterling colleague, and Irishmen at large a true, noble-hearted, and patriotic fellow-countryman.

“ Quis desiderio sit pudor, aut modus

“ Tam cari capitis ?

“ Multis ille quidem flebilis occidit :

“ Nulli flebilior quam mihi.”

J. W. M.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

DECEMBER 1, 1903.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XV.—*The Cytology of Serous and Serofibrinous Effusions of the Pleural and other Serous Cavities, and of the Cerebro-spinal Fluid.** By H. C. EARL, M.D., F.R.C.P.I.

I MUST first express my thanks to the Fellows of the Academy for having elected me President of the Section of Pathology. It has been the custom for the President at the opening meeting to deliver an Address, and I propose to follow this custom, and to address you on the cytology of serous and sero-fibrinous effusions of the pleural and other cavities. The systematic examination of the cellular contents of these fluids has been much practised during the past three years, and many communications appear in medical literature on the subject. I have had myself some experience of these examinations, and the results I have obtained are in general accord with those obtained by most of those who have written on the subject. These results are extremely interesting, and some of them appear to me to be of considerable clinical value, especially in the diagnosis of tubercular affections. I have, therefore, thought that a short account of the methods of examination, and of the results obtained, might be of interest to the Royal Academy of Medicine.

* A Presidential Address delivered before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, November 6, 1903.

It will be admitted, I think, that chemical and bacteriological examinations of serous effusions often fail to give results on which an opinion as to their ætiology can, with any certainty, be based. Even the distinction of exudations from transudations by the chemical characters of the fluid is liable to fallacies. Exudations have generally a specific gravity higher than 1018, and transudations one lower than 1018; but the specific gravity of many exudations and transudations so closely approaches 1018 that it becomes difficult to draw any conclusion.

Again, with regard to the reaction of these fluids, exudations are, no doubt, generally acid, transudations alkaline; but it is found that with phenol-phthalein as indicator both have an acid reaction, while with litmus as indicator some fluids that are certainly exudations have an alkaline reaction.

Bacteriological examinations are in many cases useful, and organisms such as pneumococci, typhoid bacilli, or others, may be found, but many of these effusions are sterile. Tubercle bacilli are rarely if ever found in serous effusions, even when they have a tubercular basis. It is taught by many that every pleural effusion which is free from micro-organisms ought to be considered tubercular. This is quite too absolute a statement, for when successive examinations have been made of the fluid from the same case different results have been got at different times.

Thus at an early stage micro-organisms (pneumococci, for instance) have been found which were easily recognised by the microscope and by culture; at a later stage micro-organisms could be recognised by the microscope in a morphologically altered condition, but could not be grown on culture media, and after a further interval of time no micro-organism could be found, even by the microscope. It is clear then that an effusion caused originally by a micro-organism may become after a time free from micro-organisms. Michaelis has moreover shown that in some undoubtedly tubercular effusions other organisms occur.

The examinations made of the cellular elements of effusions have been, till recently, chiefly carried out in cases of effusion suspected to be caused by cancer of the serous membranes. In many of these cases cancer cells are not found, but they

are certainly occasionally present, though there is much difference of opinion as to the ease with which they may be recognised. Some authors—Wolff among the number—point out that endothelial cells so alter as to take on all sorts of shapes, and may become then very difficult to distinguish from cancer cells, while others consider the recognition of the latter very easy.

There are two points which are worthy of attention as an assistance in the recognition of cancer cells :—

1. Quincke has pointed out that cancer cells frequently contain glycogen (or, at least, an iodophile substance), which is very rarely present in endothelial cells.

2. Mitotic nuclei are frequently found in cancer cells, but are said not to be found at all in shed endothelium.

Widal and Ravaut in Paris and Alfred Wolff in Berlin share the merit of having first systematically applied to pleural effusions the methods so long and so commonly adopted, and with such good results, in the examination of the blood.

The first results of their investigations on the cyto-diagnosis of pleural effusions were published by Widal and Ravaut* in June, 1900, and since that time numerous papers have appeared, chiefly in France, but also in other countries, on the cells of pleural and other effusions and of cerebro-spinal fluid.

The diagnosis of tubercular effusions of the pleura has been a matter of great difficulty. (No doubt many effusions which were at one time considered rheumatic or idiopathic were really tubercular. Landouzy, who based his conclusions on the results of *post-mortem* examinations, considered that 98 per cent. of primary effusions were tubercular, and others gave a general confirmation to his view. It must, however, be remembered that only the least favourable of these cases would be available for *post-mortem* examination, and, therefore, the percentages arrived at by Landouzy and others were almost certainly too high.) I have already pointed out that the absence of micro-organisms from an effusion is not sufficient to stamp it as of tubercular origin, and that tubercle bacilli are rarely found in serous effusions. If sputum is present in

* Widal and Ravaut. Applications Cliniques de l'Étude Histol. des Épanchements. Comptes rendus de la Soc. Biol. 1900.

such cases it is not likely to render any assistance, as it does not contain tubercle bacilli. No doubt inoculations of animals are more reliable, but the time that must elapse before a result is obtained is considerable, and they are not always available. What I have stated with regard to the difficulty of recognising the tubercular nature of effusion into the pleural cavity applies generally to effusions into other serous cavities.

It would, therefore, then be a great advantage if from the cytological character of an effusion it were possible to say whether it was of tubercular origin or not. It appears from the results of cytological examinations that in the case of pleural effusions this is possible.

Widal and Ravaut, from their examinations of serous effusions of the pleura, conclude that the different varieties of cells that occur in these fluids occur in proportions that vary with the nature of the effusion; that there is in fact a certain cytological formula corresponding to each variety; and that from a knowledge of its cytological formula the nature of an effusion may be concluded. According to them a predominance of lymphocytes denotes a tubercular effusion, a predominance of polynuclear cells an acute infectious effusion, while mechanical effusions are characterised by a predominance of endothelial cells.

Wolff* concludes that it is possible from the morphological characters of a pleural effusion to draw conclusions as to its ætiology; that where half or more of its cells are lymphocytes the effusion is tubercular; and that in acute infectious effusions the cells are polynuclear leucocytes.

These formulæ of Widal and Ravaut and the conclusions of Wolff then agree in the main, and have received general assent as to their essentials, though certain variations have been made necessary by subsequent researches.

Widal and Ravaut attempted further to maintain that their cytological formulæ also held good in the case of cerebrospinal fluid, pericardial and peritoneal effusions, and to effusions into the tunica vaginalis and into joints. In these fluids, however, the results obtained by cytological

* Wolff. *Morphologie der Pleuralergüsse*. *Berliner klin. Wochenschr.* 1901 and 1902.

examination, though generally agreeing with Widal and Ravaut's formulæ, are not so consistent as they are in the case of fluid from the pleura.

Before considering in detail the effusions into different serous cavities it is necessary to give a short description of the methods employed in investigating their cell contents.

The fluid having been obtained with aseptic precautions, the cells are collected by centrifuging. This is best done immediately the fluid is obtained, as many of these fluids coagulate spontaneously. Coagulation may be prevented by the addition of sodium citrate solution, or the process of centrifuging may be deferred until the fluid has been defibrinated. This may be effected in a few minutes by shaking the fluid up with small glass spheres. It is better to use, if possible, fluid that has not coagulated, as our knowledge of the process of coagulation is not sufficient to enable us to say how far the cells are destroyed during its occurrence. Even if coagulation has already occurred it is still possible to use the fluid for cytological examination after first shaking it up with small glass spheres to break up the coagulum and set free the cells it contains. It is probable that any loss of cells that takes place during coagulation is not material.

Centrifuging for two minutes usually obtains a sufficient deposit, which adheres to the end of the centrifuge tube, so that nearly all the supernatant fluid can be poured off without disturbing it. From the deposit, mixed with the small amount of fluid that remains, films are made. This is done by spreading some of the mixture on slides or cover glasses and allowing it to dry in the air. For the easier recognition of the cells in doubtful cases it is better to make a layer of capillary thinness, as is done in blood films. This spreads out the cell and allows its characters to come to view, but naturally the preparations made in this way contain fewer cells, and so more preparations are necessary for the subsequent counting. When the fluid is highly albuminous the dried film stains so deeply in eosin and other dyes that the details of the cells are obscured. This defect can be obviated by replacing the fluid poured off after centrifuging by normal saline solution, shaking this up with the deposit and again centrifuging (and, if necessary, repeating this process), so that the cells forming the deposit

come to be surrounded by a fluid containing little albumen. Substitution of the albuminous fluid by normal saline solution is not always necessary, and should be avoided in cases where the presence of glycogen is to be determined. Fixing is done by alcohol and ether, formol alcohol, or other method, as in the case of blood films.

The stains chiefly used are—Hæmatoxylin and eosin; methylene blue and eosin; Romanowsky stain, in one or other of its modifications; methyl-green and pyronin, as recommended by Pappenheim; and the triacid stain of Ehrlich.

The triacid stain is not of such general use as it is in the case of blood films, because the neutrophile granules are often altered so as to lose their power of taking up stains. It will be remembered that these are the most labile part of the cell, and even in blood preparations, when they are badly fixed, fail to stain.

It is often of advantage, and sometimes necessary, to use two or more staining methods. The counting is done as in blood films.

The cells that may occur in effusions, other than cancer cells, are—Red blood corpuscles; polynuclear cells; mononuclear cells, chiefly small lymphocytes; and endothelial cells.

Of these, red corpuscles are of no importance in cytology; mast cells are rarely found (though in one case they were 10 per cent. of the total cells), and are of no diagnostic value. Eosinophile cells are more often found, and in some few cases have formed a considerable percentage of the total cells, but the cases where this occurred were so very various in their nature that no conclusion can be drawn from their occurrence, and for our purpose they may be left out of account. The lymphocytes, polynuclear neutrophile cells and endothelial cells are all of importance.

The recognition of the different varieties of cells in blood films is very easy, but in films made from effusions it is often very difficult. This difference is due to the fact that, while in blood we meet generally with no degenerate cells, in serous effusions some of the cells undergo such changes as render them liable to be mistaken for cells of a different class. It is necessary to describe some of the more important degenerative forms, as obviously failure to recognise their existence may

make important differences in the results obtained. Indeed, it is probable that some of the discordant results obtained may be thus accounted for.

The polynuclear neutrophile cells are liable to undergo two changes, in both cases with the result that they appear mononuclear :—

1. The different segments of the nucleus may swell, and may come to lie so close together that the nucleus appears to be a single rounded mass. On careful focussing, however, a space can be made out separating the different segments.

2. The nucleus may break up into rounded fragments. This division is followed by division of the protoplasm, so that each portion of the nucleus becomes surrounded by a layer of protoplasm.

Ehrlich first described these bodies in an exudation in puerperal sepsis, and called them "pseudo-lymphocytes." He described them as "about as large as a small lymphocyte, having a rounded nucleus which stains deeply, and a narrow layer of protoplasm containing neutrophile granules." He considered them rare, but Wolff has found them not uncommon in pleural effusions. When the neutrophile granules can be stained in these two degenerate forms of neutrophile cell no difficulty in their recognition can arise, but when, as is frequently the case, staining cannot be accomplished their recognition is a matter of difficulty, and hence their distinction from lymphocytes needs special care.

The following points will assist in distinguishing pseudo-lymphocytes from lymphocytes :—

1. Neutrophile granules may be found in them.

2. Their zone of protoplasm is generally wider than that of lymphocytes.

3. They are naturally more common in effusions of a polynuclear character. This would probably prevent a mistake occurring, as only a few of them are likely to be mistaken for lymphocytes by anyone of experience.

4. When stained with methyl-green pyronin their protoplasm only takes on a light rose colour, while that of lymphocytes stains a deep red.

The changes in endothelial cells are of less importance than those in polynuclear neutrophiles. Their nuclei may swell

and come to lie excentrically, and they may resemble large mononuclear cells of the blood, but are always too large to be mistaken for lymphocytes.

According to Patella,* however, what other observers describe as lymphocytes are really degenerate forms of endothelial cells. The change of the large, faintly-staining nucleus of the latter to a smaller and, on account of the condensation of the chromatin, more deeply staining nucleus, with simultaneous solution and disappearance of the protoplasm of the endothelial cells, he states he has even observed in vitro. Even allowing the possibility of such an occurrence, as Tarchetti and Rossi point out, it is certainly not the rule. If it were, we should expect to find it in tubercular exudations, for it is in tubercular cases that lymphocytes are generally found in the early stage solely endothelial cells; but this, as we shall presently see, is not at all the case.

I shall now refer in more detail to the results obtained in different effusions, and I shall first speak of effusions into the pleural cavity, as in these the results have been most consistent. I have already stated that as the result of their cytological researches of pleural effusions, which were controlled by inoculations, tuberculin injections, and all other available ways, Widal and Ravaut arrived at certain conclusions, and that these conclusions received general confirmation from the researches of others.

In primary tubercular effusions, Widal and Ravaut found of nucleated cells, lymphocytes almost exclusively, with a more or less considerable number of red corpuscles. Occasionally they found a few cells, which were either large mononuclear cells or altered endothelial cells. They never found large flakes of endothelium, but they considered it not improbable that these might be found at a very early stage of the affection. Polynuclear leucocytes were always less than 10 per cent.

It appears, however, from the observations of Wolff, and of Barjon and Cade, that the cells found vary greatly, such variation depending on the time, after the commencement of the attack, at which the fluid was taken.

Wolff describes the cells of tubercular effusions as being, in

* V. Patella. Ueber Cystodiagnostic der Ex-und Transudate. Deutsche med. Wochenschrift. 1902.

typical cases, nearly all lymphocytes, but states that polynuclear leucocytes are sometimes present in such numbers as to form a quarter to one-third of the total cells. In these latter cases he found at a subsequent examination a complete disappearance of polynuclear cells. He also observed that in several cases which clinically seemed probably tubercular, and which contained morphologically altered micro-organisms, the fluid contained nothing but polynuclear cells. In the course of a few days the fluid was examined again and it was found that the polynuclear cells formed only one-third of the total cells, and at a subsequent examination no polynuclear cells were found, but only lymphocytes.

Barjon and Cade mention a case where the fluid, three days after the beginning of the attack, contained 68 per cent. of polynuclear cells and 30 per cent. of lymphocytes; six days after this the fluid contained 6 per cent. of polynuclear cells and 80 per cent. of lymphocytes. They also found that endothelial cells are often present in the early stage, and are sometimes numerous. In one case endothelial cells formed 60 per cent. of the total cells. These endothelial cells diminish very soon, and finally disappear. This variation of Widal and Ravaut's formula for tubercular effusions is to be explained by the fact that in the early stage, before a fibrinous membrane covers the pleura, desquamation easily occurs. When, however, the membrane is formed desquamation ceases, and the desquamated cells disappear by the action of the fluid in which they float.

It may be stated that polynuclear cells are always present in the early stage—about 10 days—of pleural effusions of a tubercular nature. The earlier the case, and the more acute the onset, the more numerous they are. Their cytological formula may therefore be that of an acute infectious effusion, and before having faith in Widal and Ravaut's cytological law it is necessary to know the date of onset. During the first ten days, and particularly during the first five days, a second examination is usually necessary.

The cytological formula of secondary pleural effusions—i.e., those coming on in the course of phthisis—is sometimes the same as that of primary cases, but generally the cell formula is very mixed. This has been attributed to mixed infection.

Acute infectious effusions are all characterised by a predominance of polynuclear leucocytes.

In exudations due to pneumococci the cells are at all periods mainly polynuclear, but there may be a considerable quantity of endothelium in the early stage. Exudations due to streptococci are practically the same as regards their cells as those due to pneumococci.

In exudations due to the typhoid bacillus the polynuclear leucocytes are also the predominant elements, but they are relatively less numerous than in pneumo- or streptococcal exudations. Generally they constitute 50 to 80 per cent. of the total cells, the remainder being lymphocytes and endothelial cells.

In true rheumatic pleural exudations—that is, those which come on in the course of articular rheumatism—the cells found are chiefly polynuclear, a good many endothelial cells, some red corpuscles, pseudo-lymphocytes, and a few lymphocytes.

In mechanical effusions—i.e., those coming on due to cardiac weakness or renal disease—in the early stages there are numerous large flakes of endothelium, with some polynuclear cells and lymphocytes in variable number. The endothelial cells, when the effusion is older, undergo alterations and disappear. When an infarction occurs with an effusion polynuclear cells are numerous.

So far, then, as observations have gone on serous effusions of the pleura Widal and Ravaut's formulæ have received much confirmation. Variations from the formulæ occur, but we are acquainted with the circumstances on which the variations depend. Particularly with regard to the value of a lymphocytic formula as diagnostic of tubercular effusions, there appears to be no real difference of opinion, and it is considered by many to be a most reliable sign of the tubercular nature of an effusion.

Few results of the examination of pericardial fluids have been recorded, most of them being in accordance with Widal and Ravaut's formulæ. Rendu found predominance of lymphocytes in a case of tubercular pericarditis. Dopter and Tanton in a similar case found chiefly lymphocytes with a few polynuclear cells, and endothelial cells in great numbers.

Weill, in a case of pericardial effusion, which was preceded by articular rheumatism, and which was supposed to be rheumatic, examined the fluid obtained *post mortem* and found predominance of lymphocytes, and the case proved to be tubercular. In one case, where I myself examined serous fluid obtained *post mortem* from a case of tubercular effusion, I found nearly 70 per cent. of lymphocytes.

Barjon and Cade, on the other hand, in a case where both pleural and pericardial effusions of a tubercular origin were present, while they found only 6 per cent. of polynuclear cells in the pleural effusion, the rest being mainly lymphocytes, found in the pericardial fluid 97 per cent. of polynuclear cells. Whether this could be attributed to the pericardial fluid being of more recent origin than the pleural is not stated. The number of cases examined is not sufficient to warrant any conclusion.

In peritoneal effusions, some observers have found a lymphocyte predominance in tubercular affections, others have found, what we have seen in pleural effusions, at first a predominance of polynuclears, but later on a predominance of lymphocytes.

In ascites due to cirrhosis of the liver chiefly endothelial cells, with more polynuclear cells than lymphocytes, have been found, but there are a good many discordant results, and further observations are necessary.

Widal and Ravaut applied their formulæ also to effusions in the tunica vaginalis. They and other observers found in chronic essential hydrocele either endothelial cells or none at all; in symptomatic hydrocele they found numerous cells—polynuclear in gonorrhœal cases, and lymphocytes in tubercular cases. In a traumatic hydrocele Dopter and Tanton found a predominance of lymphocytes, but after injection of iodine the fluid became rich in polynuclear cells.

Julliard* confirms and completes these views, and some of his conclusions are as follow:—

1. That in essential hydrocele the fluid contains endothelial cells, either in flakes or isolated.

2. In gonorrhœal hydrocele it contains chiefly polynuclear leucocytes.

3. In tubercular cases it contains chiefly lymphocytes.

*Julliard. Cited by Descos. *Revue de Médecine*. 1902.

4. The appearance of lymphocytes, or even of polynuclear cells, may depend on irritation, such as puncture without the existence of any bacterial process.

5. The cell contents of fluid depends more on the clinical character of the affection than on its nature.

6. The presence of endothelium alone in a fluid is not sufficient to stamp the case as essential hydrocele, as any very chronic affection may be accompanied by this condition. It has also been found that many essential hydroceles, especially those which had not previously been tapped, contain spermatozoa in their fluid. Spermatozoa are said not to occur in symptomatic hydrocele.

In articular effusions, too, Widal and Ravaut's formulæ generally hold good, though some observers have obtained results not in accord with them. Thus in some old tubercular effusions into joints polynuclear cells have been found to predominate, and in very chronic effusions of a gonorrhœal nature lymphocytes have been found.

Julliard from his observations draws the following conclusions. There are found :—

1. In gonorrhœal cases—if acute, nearly all polynuclear cells ; if subacute, polynuclear and endothelial cells ; if without fever, lymphocytes.

2. In rheumatic cases—acute, polynuclear cells ; in chronic cases, lymphocytes and endothelium.

3. In tubercular cases, lymphocytes chiefly, with some endothelial cells.

4. Puncture or other irritation causes an increase of lymphocytes and the appearance of polynuclear cells.

5. The absence of endothelial cells does not show that the effusion is tubercular.

6. The presence of polynuclear cells in a fluid is not a sign of a bacterial origin, but of the acuteness of the morbid process, whether its origin is infective, toxic, or traumatic.

Cerebro-spinal fluid is not, of course, exactly similar to effusions into serous cavities, but Widal and Ravaut, after cytological examination of it in meningitis, considered that their results justified them in extending to it the conclusions they had arrived at in the case of pleural effusions.

Wentworth had previously noted that in tubercular

meningitis lymphocytes were very abundant in cerebro-spinal fluid, and polynuclear cells very few.

In their first communication on the subject Widal, Sicard and Ravaut* arrived at the following conclusions :—Normally, and in many acute and chronic diseases, there are no nucleated cells in the cerebro-spinal fluid, but when the meninges are inflamed cells are present and vary with the nature of the exciting agent, being chiefly lymphocytes in the case of the tubercle bacillus, and polynuclear leucocytes in the case of other infective agents. It was, however, subsequently shown that the cerebro-spinal fluid if examined with great care does show a few lymphocytes normally, and that, though generally tubercular meningitis is accompanied by a predominance of lymphocytes, in some cases (about 20 per cent. according to Lewkowicz) this predominance of lymphocytes is succeeded very slowly by a predominance of polynuclear cells. It was also found that lymphocytes were predominant and abundant in general paralysis, and in tabes and syphilitic affections ; so that Widal no longer considered the lymphocyte the specific element of tubercular meningitis, but as a general sign of a meningeal reaction not sufficiently intense to require such powerful protective agents as polynuclear leucocytes.

It is not easy to determine what number of cells in cerebro-spinal fluid is to be considered pathological. Sicard suggested that when a preparation made in the usual way did not contain more than four cells in a field of the microscope, with Leitz No. 7 object glass, it was to be considered normal. It has also been sought to make a precise count of the cells, and those that contain more than half a cell per cubic millimetre are considered abnormal. Widal does not think this counting practicable, and states that it is usually easy to tell at the first glance if an increase of cells is present.

In tubercular meningitis Widal found that there was always a lymphocytosis, and that the lymphocytes formed 68 per cent. and upwards of the total cells present. Many other observers have got entirely similar results to these, but others, though agreeing generally, have not always got results which were in accord with Widal's tubercular formula. I shall mention some of the discordant results obtained.

* *Cyodiagnostic de la Méningite Tuberculeuse.* C. R. Soc. Biol. 1900.

Lewkowicz, as I have mentioned, showed that cases in which at first there was predominance of lymphocytes changed slowly so as to present a predominance of polynuclear cells. He attributed the change to the occurrence of caseation.

Mutzner found in one case, which at *post-mortem* was shown to be tubercular meningitis with purulent infiltration of the membranes, in the fluid obtained three days before death, only polynuclear cells. Others have found that the cerebro-spinal fluid in some cases, which at *post-mortem* were shown to be tubercular meningitis, contained hardly any cells, and lymphocytes were found to predominate in a case which, from the serum reaction, was believed to be typhoid fever, but generally in typhoid the cerebro-spinal fluid is normal.

The great majority of the observations recorded are in favour of the view that if in a case of meningitis the cerebro-spinal fluid shows a predominance of lymphocytes the meningitis is of tubercular origin, but the lymphocytes, instead of being, as they are in the tubercular pleural effusions, 90 to 98 per cent., are sometimes not much above 50 per cent.

The discordant results that have been obtained are, however, so numerous that they require explanation, and it cannot be said that any sufficient explanation is forthcoming. The differences may possibly be connected with the different forms that tubercular meningitis may assume. Thus cases occurring in young children are said, though sometimes not containing many cells, to show the purest lymphocytosis. In such cases the disease generally runs a very rapid course; caseation has not time to occur, the cerebro-spinal fluid remains clear, and the membranes are not infiltrated. In adults, where the disease may last weeks or months, caseation has time to occur, and the cerebro-spinal fluid is often turbid. It is in these latter cases that polynuclear cells have been generally found to predominate. It is also necessary to consider in this connection the possibility that secondary infection by a pyogenic organism may account for the polynucleosis which has been observed.

Bernard found in a case of tubercular meningitis, verified *post mortem*, in the cerebro-spinal fluid, 146 lymphocytes and 36 polynuclear cells; four days later he found 36 lymphocytes

and 157 polynuclear cells. The augmentation of the polynuclear cells corresponded with an infection by pyogenic bacteria, as was shown by cultures. A similar case has been described by Brunneau and Hawthorn, where pneumococci caused a secondary infection and polynucleosis. It appears probable that some of the discordant results alluded to may have been due to such causes.

By the consideration of these and other circumstances it is possible that practical rules of diagnosis may be laid down, but at present, though lymphocytosis has some value as a sign of the tubercular nature of meningitis, its value is not so great as in pleural effusions. The value of lymphocytosis as a sign of tubercular affection is also diminished by certain observations of Widal and others that certain cases with acute—sometimes very acute—symptoms of meningitis, and which are accompanied by a lymphocytosis of the cerebro-spinal fluid, get well on anti-syphilitic treatment; so that syphilitic as well as tubercular meningitis is accompanied by a cerebro-spinal lymphocytosis.

In acute non-tubercular meningitis all observers are agreed that polynuclear cells greatly predominate in the cerebro-spinal fluid. In epidemic cerebro-spinal meningitis it has been found that polynuclear cells generally disappear as the case improves and are replaced by lymphocytes, which gradually disappear when the case gets well. If a relapse occurs the polynuclear leucocytes are said to reappear.

The cells of the cerebro-spinal fluid have also been studied in numerous nervous diseases, organic and functional, and in cases of mental disease. I shall mention only the more important results.

In tabes, general paralysis, and syphilitic meningomyelitis a considerable number of cells are found in the cerebro-spinal fluid, and there is a predominance of lymphocytes, even in the early stages; while in peripheral neuritis, hemiplegia, and hysteria, either no cells or only the normal number. Disseminated sclerosis and Friedreich's disease sometimes show lymphocytosis, but this is not found in all such cases. In mental affections generally, with the exception of general paralysis, there is no lymphocytosis. In herpes zoster the cerebro-spinal fluid is sometimes normal, but often shows a

lymphocytosis. It never shows a polynucleosis, though the affection is so acute and micro-organisms have sometimes been found in the fluid.

Lymphocytosis is found in many cases of recent syphilis, not only in cases where there are clinical signs of a nervous lesion, but in cases who complain only of headache or asthenia. After intradural injection of cocaine a polynucleosis occurs, which after 3 or 4 days gives way to a lymphocytosis, and this in its turn, after 8 to 20 days to the normal condition. In acute alcoholic delirium, and generally in chronic alcoholism, the cerebro-spinal fluid is normal

To sum up the conclusions which may be drawn from the results I have related :—

In serous and serofibrinous effusions of the pleura, Widal and Ravaut's cytological formulæ are a reliable test of the nature of an effusion, if account be taken of the variations made necessary by the results obtained by Wolff and others in the early stage of tubercular effusions.

As regards pericardial and peritoneal fluids, the examinations made are not sufficiently numerous, nor are their results sufficiently consistent to warrant any precise conclusions at present.

Effusions into joints and hydrocele fluids have yielded results which are in general agreement with the views of Widal, and the factors which influence their cytology, such as the acuteness or chronicity and the influence of puncture, have been so carefully studied that it seems possible to draw some conclusions sufficiently precise to be an aid to diagnosis.

In cerebro-spinal fluid, though cases have been recorded with normal cerebro-spinal fluid and with polynucleosis, most cases of tubercular meningitis are accompanied by lymphocytosis. The fact that lymphocytosis occurs in tabes and general paralysis does not seriously diminish its value as a sign of tubercular disease, as the former conditions could not possibly be mistaken for the latter. Lymphocytosis is a sign of certain affections belonging to different groups, but in each group it can serve to differentiate different affections.

In acute meningitis polynucleosis occurs in the non-tubercular variety, and though it may occur in the tubercular variety also, it is then not so pure a condition as in non-

tubercular cases. Polynucleosis may give way to lymphocytosis in non-tubercular cases, and lymphocytosis may give way to polynucleosis in tubercular cases, and hence tubercular and non-tubercular meningitis may come to have cytological formulæ that are identical; but it is to be remembered that in tubercular cases the polynucleosis is accompanied by an aggravation of the symptoms, while in non-tubercular cases the lymphocytosis is accompanied by an improvement of the symptoms.

The differential diagnosis of meningitis from typhoid with meningeal symptoms may be assisted by cytology in many cases, but it must be remembered that not only have cases of meningitis with normal cerebro-spinal fluid been described, but one case of typhoid has been reported where the fluid was lymphocytic.

The presence of lymphocytosis is quite constant in general paralysis, tabes, and meningomyelitis, and may serve to distinguish them from other affections that more or less resemble them. It may also serve to distinguish general paralysis, even in a very early stage, from other mental diseases.

We have seen that tubercular effusions in all cavities are generally characterised by a lymphocytosis. How is this to be explained? It is not special to tubercular effusions, as we have seen, but when it occurs in a tubercular affection is it due to the positive chemotactic action on lymphocytes of a special toxin produced by the tubercle bacillus? or is it due, as many have urged, to the clinical character of the affection? It was laid down by Ehrlich, in his book, "*Die Anæmie*," that lymphocytes had no amoeboid movement, but were only subject to passive movements. However, the opinion seems to gain ground that lymphocytes have a true motility. We may therefore suppose a positive chemotoxis due to a tubercular toxin possible. But we know nothing of such a toxin, and, moreover, lymphocytes had not been observed in effusions due to the tubercle bacillus before these cytological examinations began.

Experiments have been made with a view of clearing up this point. Widal after intrameningeal injection of tubercle bacilli found a lymphocytosis of the cerebro-spinal fluid, up to 80

per cent. of lymphocytes being found. With pneumococci or staphylococci he produced a strong polynucleosis. Pleural effusions of a lymphocytic character have been obtained by subcutaneous inoculation of tubercle bacilli in a guinea-pig. When injected into the pleural cavity of a dog the tubercle bacillus caused an effusion containing much endothelium, as well as both lymphocytes and polynuclear cells. Injection of typhoid bacillus caused a polynucleosis, as did injection of an aseptic material—aleurion grains. By injecting diphtheria bacillus or its toxin subcutaneously Widal produced a pleurisy. This was a very acute process, but only lymphocytes (and no polynuclear cells) were found in the effusion. This observation of Widal has been confirmed.

As I have already mentioned in herpes zoster, also an acute process, when any change occurs in the cerebro-spinal fluid it is always lymphocytosis, so that there is some experimental evidence that acute microbic infections, and particularly tubercular infections, can cause an exudation of lymphocytic character.

On the other hand, there is a great deal of evidence in favour of the view which most observers seem to hold that polynucleosis is the rule in acute, and lymphocytosis in subacute and chronic processes, and that the nature of the process is of no account. For instance, I have already mentioned that Julliard found that in joint effusions of gonorrhoeal origin the cell contents were polynuclear in acute cases, whereas in chronic cases they were lymphocytes. He considers that very chronic effusions of all natures are characterised by the presence of endothelial cells; that effusions of an infective nature are, if chronic or sub-acute, characterised by the presence of lymphocytes, and if acute, whatever their causation, by polynuclear cells. The observations of Wolff on the different cell contents of tubercular pleural effusions, according as they are examined in an early or late stage, also favours this view, as do others of the observations I have related.

But even if it be admitted that the clinical character of the process is the main factor that regulates the cell contents, it seems possible that the nature of the process may also influence it. Wolff points out that he has failed to find a single lymphocyte in such chronic effusions as very old empyemas, while

the most acute cases of tubercular meningitis are those that are accompanied by the purest lymphocytosis of the cerebro-spinal fluid.

This whole question calls for further research, and the value of cytological examinations for practical purposes is not diminished by the fact that this point is still the subject of dispute.

I have placed before you sufficient facts, I hope, to enable you to judge what the present position of the cytology of serous effusions is. The results of cytological examinations generally can only be properly interpreted in connection with the clinical history of the patient. They are influenced by some factors which we know ; they are probably also influenced by factors which we do not know at present. There are still many discrepancies, and there are many points connected with the subject which call for further work on the part of the clinician and on the part of the pathologist. But so many of the observations made on the subject have received general support that cyto-diagnosis appears worthy to take its place beside other microscopic methods of clinical diagnosis.

ART. XVI.—*The Climate of Kingstown and the South Coast of England compared.* By J. BYRNE POWER, M.R.C.P.I., D.P.H., F.R. Met. Soc. ; Medical Superintendent Officer of Health for Kingstown.

EVER since the date of my appointment to the position of Medical Superintendent Officer of Health for the Kingstown District, when the necessary attention to my duties in this capacity obliged me to study the climate and meteorology of this seaport and its neighbourhood, I have been growing more and more convinced of the vast importance of its physical conditions as a *Health Resort*. My position as sanitary officer gave me, of course, special facilities for the necessary investigations ; and, as I have always regarded an intimate knowledge of the climate as the first essential step towards the formation of a reliable opinion on the actual and possible hygienic status of a district, I have continuously devoted a large share of my time and attention to the object of attaining a thorough familiarity with that which influences the area of my own professional duties.

It is now almost twenty-three years ago since I published in the pages of this Journal (Feb., 1881) a paper dealing with this same subject. In that communication, I compared and contrasted the climate of Kingstown with that of some of the noted Health Resorts in the south and west of England as regards temperature and rainfall. In discussing the temperature, I noted the extremes of range—both annual and diurnal; also the mean temperatures and mean ranges—annual and diurnal—for the localities in question. I dealt with the subject of the respective rainfalls in a similar manner, so far as the less definite nature of such records actually permitted. The other important climatic factor—the direction of the prevailing winds—was also discussed in the same connection. The Tables there published gave an analytical summary of the records kept at the Meteorological Station of Kingstown from the beginning of 1873 to the end of 1879—i.e., of eight complete years. The records were continuously made here afterwards, up to December, 1883. But, as the official Meteorological Station was removed from Kingstown to Parsonstown, no records were made here after the last-mentioned date till January, 1898, when the present Meteorological Station at Kingstown was re-established; it is now in connection with the Meteorological Office in London.

In the present communication I propose to add a consideration of the principal results derived from an examination of all the records obtained at the Kingstown Station since the above-mentioned date of its re-establishment. This will be found to corroborate in every way the evidence formerly advanced in favour of the view that Kingstown as a health resort, and more especially as a winter health resort, is vastly preferable to the far more noted and popular ones on the seaboard of the south and west of England. What most of the invalids of our own country undoubtedly desire, and what their medical advisers usually recommend, is the adoption of a residence in a healthy locality, with a mild and all-year-round equable climate, and situated as near home as possible. The evidence regarding this question which I have now collected must, I venture to assert, prove to the satisfaction of all unprejudiced inquirers that a Kingstown residence possesses

all these recommendations to a far higher degree than does any of those places to which I have referred. The points regarding the climate of Kingstown which I desire specially to emphasise are: its remarkably high average temperature for the whole year, its comparatively slight annual and diurnal variations in temperature, its peculiarly low rainfall, and its comparative immunity from the penetrating easterly winds during the colder months of the year. In each and all of these particulars it contrasts most favourably with any health resort in the whole of the United Kingdom. Surely no higher recommendation could be advanced for its general adoption as a residence for the invalid. During both summer and winter the extremes of heat and cold, respectively, are alike almost entirely unknown. This is a truly striking contrast to the conditions which obtain in some of the favourite resorts of the south of England, in which the summer heat is almost intolerable to invalids, and often proves extremely oppressive to visitors who are in the most robust health.

SPECIAL FEATURES OF THE CLIMATE OF KINGSTOWN.

The special claims and advantages which I am about to advance for Kingstown—when contrasting its natural attractions as a health resort with those claimed for the other noted ones in the United Kingdom—are its desirable position with regard to the broad Atlantic; its immediate—even abrupt—proximity to the deep sea of its own harbour and vicinity; its comparatively sheltered position with regard to the rain-bearing winds; its utilisation of the entire breadth of Ireland to screen it from the excess of moisture borne in by the westerly and south-westerly winds from over the surface of the warm waters of the Atlantic; the marked infrequency of easterly winds during the colder months of the year; and—not least important, perhaps, although most prosaic—its facility of access; forming, as it does, one of the most prominent links in the chain of communication between the respective capitals of England and Ireland. In familiar language, the presence of a great body of water acts as a drag on the temperature of the land in its vicinity. It effectually retards the ascent; it resists the fall with corresponding efficiency. This factor, of course, makes its peculiar power felt more fully when a

deep sea shore is in question. The presence of a shallow strand, which during low tide becomes dried, and even heated, by a glaring summer sun—such as we find so near as Merrion—neutralises under such circumstances the comparative proximity of the broad sea surface. In this particular, Kingstown enjoys a peculiarly favourable position. The climatic advantages which it derives from the neighbourhood of the vast body of the Atlantic Ocean are pretty nearly of identical value with those enjoyed by Ventnor as regards temperature ; while in other particulars of great collateral importance they are greatly superior to those of the latter popular resort.

Lines drawn from Cape Clear to the Land's End, and from the Land's End to Ushant, may, I think, be fairly taken to represent the respective Anglo-Irish and Anglo-French margins of the body of the Atlantic Ocean. But the distance of Kingstown from the mid-point of the former line is somewhat less than is that of Ventnor from the former ; and, accordingly, the influence of the temperature of the great ocean may be regarded as transmitted with approximately equal efficiencies to the two localities. But there are at least two other points in which the position of Kingstown has an advantage over nearly all the noted sea-side residences in the United Kingdom. The first of these is its immediate contact, so to speak, with the *deep* sea. A very gradually sloping beach, such as we find at most of the favourite health resorts, takes away a large proportion of the residential value for the invalid. Its presence ensures wider ranges of temperature in both summer and winter. And those considerable variations of temperature—especially when rapidly effected—are precisely what no invalid can afford to bear.

As far back as the year 1881, I took the opportunity of contrasting the temperatures recorded at the meteorological stations of Kingstown and the Ordnance Survey Office, Phoenix Park. Comparison of the published tables shows the temperature at a higher average for the whole year round at Kingstown, and more especially—as I wish all interested readers specially to note—during the winter months. To the uninitiated, this fact would seem at first sight strange ; but it could be foretold by mere *à priori* induction by the skilled meteorologist. Notwithstanding the comparatively slight

distance between the two stations, the presence of the intervening belt of land suffices, except when a lively breeze blows from the sea, to rob the climate of the Phoenix Park Station of a large proportion of its insular features. The difference, of course, will be less marked when the wind blows from the sea; between them it remains obviously perceptible, and will be noticeable to the most casual observer on a hot summer day, when the temperature of the whole land surface has become elevated.

RAINFALL.

The next great advantage of the position of Kingstown to which I have referred, is that of the conditions which influence its rainfall. These are of notable effect in the winter months. The actual quantity is determined by the fact that the great bulk of the moisture conveyed by the westerly and south-westerly winds to our island, from over the surface of the North Atlantic Ocean, is necessarily precipitated in course of the transit across the whole breadth of our island; and more immediately, and with more unfailing effect, by the proximity of the Dublin and Wicklow mountains. Nature has indeed—most providentially for Kingstown—placed the latter in the most telling position possible with regard to its climate, and especially its rainfall; for the principal rain-bearing winds of our country have to cross those mountains before reaching it. The inevitable result is that the bulk of the remaining moisture which they convey is always condensed in the ascent, and the rain which was approaching the coast is for the most part deposited on the sheltering hills. These physical facts account for the peculiarly low rainfall of the hollow basin which includes the sites of Dublin, Kingstown, and their surroundings. It is illustrated by the following record:—

TABLE I.—*Giving average monthly and annual Rainfall at Kingstown and Phoenix Park for 13 years (1873-'83) and (1901-'02).*

STATIONS	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	13 Years' Average
Kingstown	2.20	2.27	1.86	1.82	1.75	2.08	2.90	3.24	2.59	2.99	2.77	2.33	28.80
Phoenix Park	1.96	2.19	1.96	1.89	2.30	2.39	2.90	3.31	2.43	3.40	3.01	2.40	29.66

The annual rainfall record of both Kingstown and the Ordnance Survey Office, Phoenix Park, stations, has always been remarkably low. A eight years' average for the former gave 29.5 inches, for the latter 30 inches. It is important to note that this average includes the excessive rainfall of 1880, which amounted to 37.13 inches at Kingstown, and 36.07 inches at the Ordnance Survey Office, Phoenix Park. The next highest rainfall in Dublin of which I can find any record is that of 1846, which amounted to 36.11 inches. On comparison of the total rainfall for the winter months of the more important Health Resorts, I obtained the following average:—Penzance, 23.5; Guernsey, 20.4; Barnstaple, 18.4; Torquay, 18.3; Scilly, 17.1; Hastings, 16.0; Llandudno, 16.0; Ventnor, 15.0; Ramsgate, 14.4, and Kingstown, 12.7. So that the rainfall at Kingstown during the winter months is far below any of those well-known stations, and is hardly more than half that of Penzance. I have already indicated the peculiarities of the position of Kingstown, which combine to give it so low a rainfall. They all are in striking contrast with those of Penzance, where the rain-charged clouds borne in from the surface of the Atlantic by the south-westerly winds are first tapped by the land.

WIND.

The existence of easterly winds, especially in the colder part of the year, is universally allowed to be deleterious to invalids, and the record of Kingstown in this particular—so far as it has hitherto been kept—is a peculiarly favourable one. I have already placed on record a table giving the number of days in each month, from January, 1873, to December, 1880, in which the wind blew in a certain direction at a fixed hour. The table showed a great prevalence of westerly and southerly winds as would, of course, be expected. But the special advantage enjoyed by the Kingstown locality, is that the proverbially harsh east winds are here least frequent during the three coldest months of the year January, February, and December (July excepted). The maximum for Kingstown was not reached until the month of May, while the maximum frequency at the Ordnance Survey Office, Phoenix Park, was reached a month earlier. The advantage of this climatic

distinction, especially to subjects of chronic bronchial and pulmonary diseases, can hardly be overrated. In the years 1901 and 1903, I kept, for the first five months of each, a daily record of the direction of the wind at the Kingstown station at 9 a.m. This I compared with the published records of Portland and Dungeness on the British coast; representing, as their positions do, a reliable index of the prevailing atmospheric currents over a great part of the whole British margin of the English Channel, and I found that while, during the whole of those two periods of five months each, the Kingstown east wind blew on 45 days only, at Dungeness it prevailed on 65 days, and the Portland record registered 85. And the specially important significance of this contrast will be appreciated when it is remembered that between the limits of the two latter stations are situated nearly all the fashionable health resorts of the south coast of England.

TEMPERATURE.

For a winter residential health resort, the absence of extremes of low winter temperatures is, very obviously, one of the most important features. And in this connection the following particulars are worthy of special attention. During the prolonged frost of December, 1879, the thermometer fell as low as 22.6° at Torquay, 22° at Ventnor, 20.9° at Ramsgate, 19° at Bournemouth and Eastbourne, and 17.6° at Hastings; while at Kingstown the mercury never descended below 23° . In the course of that month the thermometer registered a temperature below freezing-point on no fewer than 24 days at Ramsgate, on 21 days at Hastings, on 20 days at Eastbourne, and on 19 days at Torquay and at Bournemouth; while at Kingstown it fell below that critical point on 12 days only, thus almost matching Ventnor, where a freezing temperature was recorded on 11 days. And in the still more severe frost of January, 1881, the thermometer at the Ordnance Survey Office, Phoenix Park, fell to 4° F., the lowest recorded at that station during a period of 43 years. During that month a temperature of 15° was recorded at Hurst Castle, near Bournemouth; while at Kingstown it never descended below 17° .

A remarkable and interesting contrast was established between Bournemouth, Ventnor, and Kingstown in the snow-

fall of January, 1901. The temperature at the first station registered a minimum of 15°, at Ventnor 25°, while that of Kingstown did not fall lower than 29.5°.

A study of the tables which I present to my readers will at once show the advantages possessed by Kingstown over the favourite Health Resorts of the South of England, as regards both summer and winter records of temperature, and more especially the latter. Too much emphasis can hardly be laid on the superiority of the Kingstown winter climate, for the two-fold reason, that it is the most important section of the annual cycle in the interest of the invalid, and that it has hitherto been utterly ignored or unrecognised. The fact will, I trust, be henceforth kept prominently before the public eye, that neither in beauty of physical surroundings nor in advantageous qualities of climate can any of the famous resorts of the South of England be held to rival Kingstown. Their reputations in these respects are purely artificial. A fair proportion of visitors and tourists do, indeed, appear in Kingstown every summer; but they disappear with the swallows as the winter cold approaches, attracted by the ruddy glow of illuminating advertisements to an imaginary milder climate in the South of England. Even the purely commercial importance of these facts can hardly be over-estimated. Our locality, like that of other large towns, presents its share of poverty. And I unhesitatingly affirm that if the climatic superiority receives the recognition to which it is entitled, the larger proportion of that poverty will disappear as a direct consequence. We will, of course, be reminded by some obstructionists that it will be very hard to compete with the wealthy English resorts; but, as a matter of fact, an effort has never been hitherto made to keep the greater advantages—especially the climatic ones—of Kingstown prominently before the public. In former years, indeed, we were ourselves quite unconscious of the superior qualities of our climate. When these are universally known, the natural consequences will assuredly follow.

The following table gives the mean temperature records for the winter months—or, more accurately, for the five coldest and most trying months of the year—at the respective meteorological stations of Torquay, Ventnor, Kingstown, Portland, Llandudno, Bournemouth, and Dungeness.

TABLE II.—Comparing average Mean Temperature for each of the winter months during 5 years (1898–1902) at Kingstown with that for the same months at other health resorts.

STATIONS	Nov.	Dec.	Jan.	Feb.	Mar.	Mean for 5 Winters	REMARKS.
							It will be seen that the stations given in this table are arranged in the order of their mean winter temperature as in the last column
Torquay	48.7	45.3	46.8	41.9	43.3	45.2	<p>Torquay has a higher winter temperature than either Ventnor or Kingstown, but a much greater rainfall</p> <p>The average mean temperature for 4 previous winters (1873–77) at Kingstown and at Ventnor was exactly the same—44.4°</p>
Ventnor, I.W.	49.0	44.6	44.2	41.2	43.1	44.4	
Kingstown	47.8	44.7	44.4	41.1	43.6	44.3	
Portland Bill (near Weymouth)	47.8	44.2	44.0	40.8	42.3	43.8	These averages are taken from the Records at Prawle Point up to March 31st, 1899. The Station was moved to Portland Bill on 1st July, 1899
Llandudno	46.6	44.0	43.2	40.5	42.5	43.4	Although Llandudno and Kingstown are equidistant from the open Atlantic or Gulf Stream, yet the winter temperature of Kingstown is considerably higher. The average mean at Llandudno for 4 previous winters (1873–77) was 43.5°
Bournemouth	46.8	43.2	42.8	39.9	42.2	43.0	Bournemouth has a remarkably low winter temperature as compared with that of Ventnor and Kingstown. This may be owing to its embayed position between St. Alban's Head to the south-west and the Isle of Wight to the south-east
Dungeness (near St. Leonards)	47.2	43.1	42.1	39.2	41.1	42.5	This station, being the extreme east end of the English Channel and therefore furthest from the Atlantic, has the lowest winter temperature

On glancing over the figures contained in the above table, the casual reader may, of course, feel inclined to think that

the actual difference is, after all, but a comparatively insignificant one. But an examination of the daily records shows the fallacy of such a conclusion. This is specially exemplified by a comparison of those of Kingstown and Bournemouth. The *steadiness* of the winter temperature of Kingstown is indeed one of its greatest recommendations. During the whole of the five winters above recorded, the thermometer fell to 32° on 63 days only at Kingstown; while at Bournemouth during the same collective period, it reached 32° on 129 days.

The series of stations (connected with the important health resorts) above given, are arranged in the order of their mean winter temperature—as a glance at the last column will at once show—and the following points are worthy of special attention. Torquay has a higher winter record of mean temperature than Ventnor or Kingstown, but it has a much higher winter rainfall than either, as will be seen on reference to my paper in this Journal for Feb., 1881. The mean average temperature for four winters (1873–1877) previously recorded was exactly the same for Kingstown and Ventnor—44.4°. The Kingstown temperature records are much higher than those of Llandudno, although both are situated at approximately the same distance from the main body of the Atlantic Ocean. The low winter temperature of Bournemouth is a very striking feature, when compared with that of Ventnor and Kingstown respectively.

The sea temperature for the winter months at Kingstown will be found in Table IV.

SUMMER TEMPERATURE AT KINGSTOWN.

A glance at the next table shows another great advantage of Kingstown, compared with the other health resorts included. It is the very moderate summer temperature. The thermometer registered 80° on one day only—July 11, 1901. The collective record of the five summers shows that on no fewer than 107 days the thermometer at Bournemouth gave readings ranging between 75° and 85°; while at Kingstown during the same period the limit of 80° was reached but once, and readings above 75° were recorded on 9 days only.

TABLE III.—*Comparing average Mean Temperature for each of the summer months during 5 years (1898–1902) at Kingstown with that for the same months at other health resorts, also giving sea temperature at Kingstown.*

STATIONS	July	Aug.	Sept.	Summer mean	Absolute highest	REMARKS
Kingstown— Sea	• 58.3	• 59.6	• 58.0	• 58.6	• —	At Kingstown the thermometer reached 80° on 1 day only—11th July, 1901.
Land	61.1	60.7	58.0	59.9	80	
Bournemouth	63.1	62.2	59.0	61.4	85	During the 5 summer: the thermometer reached from 75° to 85° on 107 days at Bournemouth, whereas it read between 75° and 80° on 9 days only at Kingstown.
Ventnor, I. W.	63.3	63.6	60.9	62.6	80.3	
Torquay	63.0	62.6	59.7	61.8	82.5	
Llandudno	60.8	61.1	58.4	60.1	90	

The vast differences—thermometric and hygienic—which are so well known to mark off the so-called “insular” and “continental” climates of the same latitude, seem to the uninitiated to rank among the more profound of Nature’s mysteries; but they are very easily explained after acquiring a knowledge of a few elementary physical facts. The most important of these in this connection is that water possesses a higher “specific heat” than any other known chemical compound—that is to say, it requires a larger quantity of heat to raise the temperature of a certain mass of water by a degree of any thermometric scale than it does to elevate that of any other substance through the same range. Take with this physical fact the other fruitful one, that a heated surface affects the temperature of the superincumbent air, which becomes warmed and ascends, while the cooler circumferential air rushes in from all sides to re-adjust the equilibrium so disturbed, and we are in possession of the secret springs which determine the respective characteristics of the two

great types of climate. The key of the cosmopolitan problem is contained in the interpretation of the experiment which is noted by every intelligent school-boy during his holiday rambles. It is that of sitting on a shelf of a sea-shore cliff on a hot summer's day, and placing one hand in the water and the other on the naked rock. One hand is cooled, while the other is scorched. At the same time, although an approximately "dead calm" prevails at a quarter of a mile from the shore, he is conscious of a cool, refreshing, lambent breeze, which fans his face while he makes the experiment which arouses his boyish curiosity. And the relatively slight capacity for heat of the solid rocks and earth and sand which form the adjacent coast accounts for the rapid fall of the temperature of the latter after the decline of the sun, while the comparatively vast retentive power of the water necessitates an almost imperceptible cooling. Hence the thermal relations of rock and water undergo a reversal with the fall of the shades of evening; and hence the cooling breeze which blew from sea to land during the heat of the day is found to blow in the opposite direction at night. The following table furnishes a striking illustration of the moderating effects of the sea on winter climate in the case of Kingstown. It also demonstrates the rapid change as we recede from the coast:—

TABLE IV.—*Comparing the average Mean Temperatures at Kingstown during the winter months with those at Dublin City, Phoenix Park (Ordnance Survey Office) and Parsonstown for 5 years (1898–1902), also giving the temperature of the sea at Kingstown.*

STATIONS				Nov.	Dec.	Jan.	Feb.	Mar.	Mean for 5 Winters
Kingstown—				.	.	.	.	.	.
Sea	..	..	..	50.6	47.4	45.7	42.8	43.2	45.9
Land	..	..	..	47.8	44.7	44.4	41.1	43.6	44.4
Dublin City	..	..	..	47.0	44.3	43.6	40.7	43.2	43.8
Phoenix Park	..	..	..	45.0	41.4	41.1	38.7	41.3	41.7
Parsonstown	..	..	..	44.7	42.0	41.2	38.8	41.5	41.6

I have above pointed out and explained the influence of the proximity of water upon the temperature. I must also emphasise the special importance of a *deep* body of water. The latter exposes no strand during the tidal ebb. I may here also mention that in winter the fact that the chilled upper layer of the water necessarily sinks by virtue of its increased density, and is replaceable to a practically unlimited extent by warmer strata from below, has a great influence on the temperature of the superincumbent atmosphere so long as the latter remains above 4·0° (C). I have already

TABLE V.—*Mean Diurnal Range of Temperature.*

STATIONS	WINTER					
	Nov.	Dec.	Jan.	Feb.	Mar.	Winter mean
Ventnor, I. W.	7.7	7.6	7.5	8.7	10.3	8.4
Llandudno	9.4	8.2	7.9	8.9	9.4	8.8
Torquay	7.8	8.7	8.4	9.8	11.4	9.2
Kingstown	9.2	9.0	8.7	9.2	10.3	9.3
Bournemouth	10.3	9.5	9.2	10.4	12.6	10.4
Phoenix Park	11.9	10.4	10.8	12.3	13.8	11.8

STATIONS	SUMMER			
	July	August	September	Mean
Ventnor, I. W.	13.1	11.1	11.4	11.9
Llandudno	11.9	12.5	11.4	11.7
Kingstown	13.2	12.7	12.0	12.6
Torquay	14.3	13.0	13.0	13.4
Bournemouth	16.6	15.1	15.5	15.7
Phoenix Park	15.2	16.1	15.6	15.7

referred to the heating of the Merrion Strand by a summer sun at time of low water. The winter frost gives a correspondingly striking result; for we sometimes find ice forming on the thin films of seawater left on that strand during the ebb of the tide.

Table V. offers for comparison the mean diurnal ranges of temperature (during the most important months) at Kingstown and some other well-known stations. I think it right, however, to mention that during the earlier period of the record (1873-1879) the thermometers were not fully exposed, being placed in a "yard," where they were sheltered from winds, &c. But this defect, although influencing the *maxima* and *minima* records, did not affect the *mean* diurnal ones. This is shown by the agreement of the mean temperature record at Kingstown with those at Ventnor and Llandudno during the period 1873-1880.

HUMIDITY.

The importance of the relative humidity of a locality, especially as a health resort, is very great indeed. This is, of course, largely determined by temperature and atmospheric pressure. When the former is high and the latter low, a vast proportion of (invisible) water vapour will be sustained by the air. The lowering of temperature with ascent explains the steady position of a mountain "cloud-cap" on a breezy day. Accompanying the condensation of moisture, which occurs with a fall of temperature, there is always a setting free of a proportionate quantity of latent heat, which has the effect of raising the temperature of the air. This physical fact accounts for the disproportionate "closeness" of misty weather, when taken in connection with the other important one that an enveloping (cloud or) mist acts like the glass roof of a greenhouse; it allows the greater proportion of the rays of light to pass through, and intercepts those of heat. Accordingly, the sun's rays which pass through a mist to the earth's surface, and are there converted into heat-rays, are effectively imprisoned. On this account a cloudy atmosphere fulfils, to some extent, the function of a greenhouse roof or of a domestic blanket. When the evidences of such

function are in excess, the necessarily "muggy" oppressive "feel" is the direct result.

The following table compares the average relative humidity of Kingstown and some other stations:—

TABLE VI.—*Comparing monthly average Relative Humidity at inland stations with that of stations on the coast during 2 years and 10 months (1901–1903).*

STATIONS	Jan.	Feb	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
IRELAND— Kingstown	81	82	76	76	75	75	75	75	77	79	80	85	78.0
Phoenix Park	85	85	83	76	76	76	78	81	82	86	87	86	81.7
Parsonstown	94	93	91	85	82	81	85	87	87	91	91	90	88.6
ENGLAND— Llandudno, 10 yrs. average, 1881– 1900	84	82	79	76	72	75	76	76	78	79	82	82	78.4
Worthing	89	89	84	73	76	73	73	76	80	85	86	88	81.0
Oxford	90	89	86	79	80	74	77	84	89	90	90	89	84.0

I regret to say that the records of relative humidity at Kingstown station have been kept only during the short period of 2 years and 10 months. But, so far as this record goes, it shows that our average relative humidity is even lower than that of Llandudno; which the published continuous record of the previous decade (1881–1900) showed to be the lowest of any station in England. This is at once to be seen by a reference to a paper by Mr. F. C. Bayard in the *Quarterly Journal of the Royal Meteorological Society* for January, 1903. This table also shows that, as a rule, coast stations have a lower relative humidity than those inland.

In the above Table are recorded the monthly averages of the years 1901 and 1902, and also for the ten completed months of the present year. Accordingly, it presents the average for three years during the earlier ten months; and for two years only during the last two months of the year.

It is unnecessary to dwell on the great importance of this very low humidity in the treatment of many diseases.

I hope I shall not be considered as overrating the Kingstown climate or representing it as being an absolutely mild winter residence; such is not my intention. I have spent some winters in the south of Europe, Madeira and elsewhere; and, therefore, am not likely to fall into such an error. All I contend for is that our climate is very mild and remarkably equable for these latitudes; taking it on the whole, as much so as that of any station on the south coast of England.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1904, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College, Thomas R. Neilson, M.D., on or before May 1, 1904. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1903 has been awarded to Dr. William S. Carter, of Galveston, Texas, for his essay entitled: "The Relation of the Parathyroids to the Thyroid Glands."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Uric Acid as a Factor in the Causation of Disease. By ALEXANDER HAIG, M.D., F.R.C.P.; Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Sixth Edition. With 75 Illustrations. London: J. & A. Churchill. Pp. 947. 1903.

THIS work has had a great success. Published first in 1892, a new edition has appeared practically every second year since then. It is therefore evident that whether the profession and the public have endorsed Dr. Haig's views or not, at any rate his theories have not been passed over with neglect.

These theories are fairly well known, and are stated at length in the work before us, based on and illustrated by an immense number of observations, made for the most part by the author upon himself. Stated in a few words, Dr. Haig's view is that high blood pressure, epilepsy, headache, nervousness, mental diseases, asthma, hay fever, paroxysmal hæmoglobinurea, anæmia, Bright's disease, diabetes, gout, rheumatism, bronchitis, and other disorders are caused, at any rate in large degree, by uric acid in the blood. Uric acid is met with in the body and blood from three causes:—(1) It has been introduced in excess by the consumption of articles of food such as meat, eggs, fish, tea, coffee, cocoa, &c., which contain it or other members of the xanthine group equivalent to it; (2) so much nitrogen is taken that the uric acid formed out of it, owing to the high acidity which the salts and other products of nitrogenous metabolism produce, is not all excreted, and is gradually stored up in the body; (3) owing also to this acidity the ready-formed uric acid introduced with animal food is not sufficiently excreted. Hence his remedy for all the above-mentioned morbid conditions is the avoidance of meat and all meat foods, and of tea and coffee.

It is much to be regretted that Dr. Haig does not give a

great deal more detail as to the dietary which he recommends. He says patients often ask him, after he has enumerated the foods that must be given up, "What then is left to live on?" and we are not surprised at their question. For answer he tells us that at a Home in Buckinghamshire he gives practical instruction in food and feeding—this we regard as a piece of self-advertisement entirely unworthy of a Fellow of the Royal College of Physicians of London. If a man writes a book advocating a certain line of treatment, he should fully explain it in his book, and not make it almost a necessity that patients should come to him personally for further advice.

We are fully in agreement with Dr. Haig that many persons eat too much nitrogenous food, and injure themselves thereby; but when he goes on to say: "Those who consider that sluggish circulation, poor blood, defective cerebration, mental and bodily lethargy, and a life of almost constant pain and disease terminating in the forties or the fifties, represent the *summum bonum* of human existence, can no doubt get the little they ask for; but it will soon be no longer possible for them to say that nothing better was known or obtainable."

"A stronger, more noble, and more active life, lived for a hundred rather than for fifty years, and ending in a natural death which will be painless and unconscious as birth, is what knowledge of the truth promises to all who will dare to follow it" (Preface, p. viii.). When he makes such statements as these we cannot follow him, and we appeal for support to our views to the experience, not of one man, but of nations; to experiments, not on a few, but on millions of human beings. For what is the dietary and the history of a nation but an experiment on a scale so vast as to almost exclude the possibility of error? Some nations have been, and are, meat eaters to a much greater extent than others. And, if Dr. Haig's views were correct to the degree which he appears to believe, those nations should certainly have fallen behind in the struggle for existence. We look round the world and we see the meat eaters the most powerful and the most progressive.

Before we carefully adopt Dr. Haig's views he must base his theories less on his own experiences and more on the experiences of mankind.

PART III.

SPECIAL REPORTS.

REPORT ON RHINOLOGY AND LARYNGOLOGY.

By S. HORACE LAW, M.D. Univ. Dubl., F.R.C.S.I. ; Throat Surgeon to the Adelaide Hospital, and Surgeon to the Dublin Throat and Ear Hospital.

THE BACTERIOLOGY OF ACUTE OTTIS MEDIA.

THIS is a subject which has occupied much attention, especially in Germany, and E. C. Ellett, M.D., has an interesting article on it in the *Journal of Eye, Ear and Throat Diseases* for July–August, 1903. It is agreed that various forms of bacteria are responsible, but recorded opinion is not unanimous as to the relative virulence of the different forms, or as to which may be attributed the greater likelihood of complications, such as mastoid affection and meningitis. Some writers put the pneumococcus first and streptococcus next, but his results are as follow :—

Staphylococcus (albus 13, aureus 9)	..	22
Pneumococcus	.. ..	4
Proteus vulgaris	.. ..	1
Colon bacillus	.. ..	2
Streptococcus	.. ..	2
Bacillus pyocyaneus	.. ..	1
No growth	.. ..	5

In conclusion he made the following statements :—

1. All of the usual varieties of pyogenic organisms are associated with, apparently as the cause of, acute otitis media.
2. We cannot foretell with any certainty, from the bacteriological study, which cases are likely to prove severe and of long duration, and which cases are to be mild and brief.
3. We cannot foretell with any certainty, from the bacteriological study, which cases are and which cases are not liable to be accompanied by mastoid and other complications.

4. A classification of otitis media from a bacteriological point of view is possible if care is taken in securing the secretion, but the value of such a classification is questionable since it affords no reliable indications for either treatment or prognosis.

LIPOMA OF THE TONSIL.

In the *Laryngoscope* for August, 1903, Dr. Clement F. Theisen reports a case of lipoma of the tonsil. The patient was a girl, aged eight years, and had been troubled with severe paroxysmal cough for several years. The growth was compressible, but did not fluctuate, was yellow in colour and attached by a pedicle to one of the crypts of the tonsil. It was easily removed by being cut off near the tonsil with a pair of scissors. The microscopic examination proved it to be a lipoma. There have been six cases reported where the diagnosis has been confirmed by microscopic examination. They were found at various ages; all were pedunculated and easily removed, and were attached to the tonsil. It is generally considered to be a congenital affection; more especially as there are no fat cells found in the tonsil.

THE PRINCIPLES OF RHINOLOGICAL PRACTICE.

In the *Laryngoscope* for July, 1903, Dr. Edwin Pynchon has an article on the above subject, and the following are his conclusions:—

1. In the normal nose the nostrils should be of equal calibre, and should jointly have a sufficient capacity to at all times supply the requirements of easy respiration.

2. In the ideal nose the walls of the septum are practically plane, and are at no time or place touched by the tissues of the outer wall in either passage, and, furthermore, no points of contact exist elsewhere therein, so as to interfere with either ventilation or drainage, or prevent the normal evaporation of nasal moisture.

3. While in an ideal nose the septum is vertical and nearly plane, a moderate irregularity thereof will not impair the nasal respiratory functions, provided there are no points of contact or abrupt elevations therein, and the lumen at all points is sufficient.

4. Abnormal redness of the nasal mucous membrane is an unfailing sign of irritation, the cause of which is generally of a structural nature, and, therefore, amenable to surgical treatment.

5. The indications for operative treatment depend on both the subjective and objective symptoms. A noticeable inadequacy of either nasal passage, the presence of excessive or retained secretion, or an abnormal redness of the mucous membrane at any point, are all evidences of abnormality, which, if coupled with inconvenience to the patient, invite corrective attention.

6. In the treatment of chronic hypertrophic troubles, the indication is to remove all obstructive, redundant or pathological tissues, and at all times the chief indication is to cause the defective nose to conform as nearly as practical to the contour and character of the ideal standard.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

At a meeting of the College held on Wednesday, October 21st, 1903, the following gentlemen having passed the necessary examinations were admitted Fellows of the College:—Nicholas Norman Blanchard, L.R.C.S.E., Canada; Henry Norman Barnett, L.R.C.S.E., Belfast; Raphael Aaron Belilios, M.B., Ch.B., London, S.W.; John Macaulay Bowie, M.D., M.R.C.P.E., Edinburgh; Percy Carr-White, M.B., C.M., Major, Indian Medical Service; Reginald Laidlaw Davies, M.B., L.R.C.S.E., New South Wales; George Day, L.R.C.S.E., Aviemore; Farbrace Sidney Gramshaw, M.D., L.R.C.S.E., Easingwold, Yorks.; John Archibald Hamilton, M.B., C.M., Captain, Indian Medical Service; Lawrence Fielder Hemmans, M.B., Ch.B., Linco.; William Smith Kerr, M.B., C.M., Sheffield; Charles Edward Lester, L.R.C.S.E., New South Wales; Peter Murray, M.B., Ch.B., Edinburgh; Robert Odell, M.R.C.S. Eng., L.R.C.P. Lond., Hertford; George Henry Peake, L.R.C.S.E., Madagascar; Lorne Forbes Robertson, M.D., M.R.C.S. Eng., Ontario; William Moore Skipwith Robinson, L.R.C.S.E., London; Simon Ryan, L.R.C.S.E., Sheffield; Alexander Stookes, M.B., L.R.C.S.E., Liverpool; William James Stuart, M.B., Ch.B., Edinburgh; Walter Henry Swaffield, M.B., L.R.C.S.E., Sevenoaks, Kent; and Frederick William Kerr Tough, L.R.C.S.E., Leith.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

*THE IDEAL PHYSICIAN: HIS EARLY TRAINING AND FUTURE PROSPECTS.**

By SIR LAMBERT ORMSBY, President of the Royal College of Surgeons, Ireland.

GENTLEMEN,

About this time last year, and in this place, I had the honour and privilege, as President, of bidding you welcome on entering upon the study of one of the most arduous and yet most noble of professions. To-day I again bid you welcome, those particularly who are entering upon the study of medicine, as well as those who are resuming study. The latter I would ask to start with redoubled energy after their long and well-earned holiday, and so give both a healthy stimulus and bright example to your junior fellow-students.

It is the custom with some to condemn annual addresses, and in many medical schools they are falling into abeyance. I am of opinion, however, that a short address introductory to the Session about to commence is of great service to those beginning the profession, as it marks with emphasis the starting point of the student's career, and I would be very sorry indeed to see the custom given up here, where it has existed for so many years.

The selection of the topic for my Address to-day, I can assure you, was a great mental puzzle, anxious as I was to arrange my subject so as to say something interesting and suitable to all. If I merely draw up a sermon full of fatherly advice for the first year's students, telling them that if they wanted to succeed in the battle of life they must be zealous and industrious, it would.

* Address delivered to the Students of the Royal College of Surgeons in Ireland on the occasion of the opening of the Medical Session, 1903-1904, on Monday, November 2nd, 1903.

in the abstract, be strictly true; still this oft-repeated tale would be anything but interesting to the senior students, who have frequently heard me and others on the same subject. Then I knew we should have a number of qualified brethren, senior and junior, present, and they would hardly go to the trouble of following me through high-sounding platitudes with a sprinkling of poetry to make it read well in pamphlet form. I therefore select for my Address to-day the following subject:—

"THE IDEAL PHYSICIAN: HIS EARLY TRAINING AND FUTURE PROSPECTS."

To be an ideal physician should be the aim of every man who embraces medicine as a profession. Everyone is not gifted with the same qualifications for a successful career. Some few, indeed, may be born with considerable ability, but at the same time endowed with a rough, overbearing manner, yet by sheer determination these may force their way into the front ranks of their profession. But such disregard for the feelings of others and such lack of politeness must always tell against their success in the long run. Others adopt this Abernethian style from ignorance. I regret to say it appears to be an age where young men are prone to pay but scant courtesy to their seniors, under the mistaken idea that having been born in a more enlightened age they could not possibly learn anything worth knowing from those who have gone before. This is a popular fallacy, and the outcome of youthful presumption and want of experience and common sense, for the more a medical student or young practitioner learns the more he appreciates those master minds who have been the pioneers of his profession.

The early training of the ideal physician, as for any other ideal, must be undertaken with very great care. It is, in fact, a preparation for a great and serious struggle, a most momentous battle. A youth must start as a student determined to succeed. Fix, then, in your own mind some successful model, and ascertain the means by which he succeeded, whether by tact, industry, skill, or a combination of all these, and then strive with all your might to acquire the same qualities.

Take care in starting that you are equipped with all the necessary armour and weapons for the encounter upon which you have entered. Be industrious, punctual, cheerful, kindly, courteous to your seniors, respectful to your teachers, and prune off those

small objectionable asperities which might hereafter be the means of retarding your progress ; and above all avoid that sorry band of wasters and drifters whose ways and means are so well known to you all. Let your one aim and end be always to achieve the enviable reputation of a good doctor and a courteous gentleman.

As I stand here I see before me a body of stalwart young men burning with the generous sympathies of youth, strong with robust qualities, both mental and physical, standing in the shadow of this old and respected seat of learning, upon the brink of the arena into which they are so soon to enter. So let me now briefly allude to your future prospects. You will ask me what are your future prospects. In answer I may mention the Navy, the Army, the Indian Medical Service, foreign appointments, ship surgeoncies, Irish Poor Law Medical Service, and, lastly, private practice. Of these I fear I will only have time to make a brief allusion to three. Last year I spoke at length of the favoured conditions of the home Army Medical Service as a career, and I am still in favour of this service, notwithstanding there are yet a few grievances in the R.A.M.C. to be remedied.

THE NAVAL MEDICAL SERVICE.

This service is the oldest service of all, and ought to be one of the most popular. But it is not popular, and you may ask me why. Well, I will try to enumerate a few of the defects of the Royal Naval Medical Service up to six months ago, and point out certain of the grievances in the recent regulations which have been remedied. :—

1. *Late Promotion.*—At present the average age of a surgeon entering the Naval Medical Service is 25. He serves until he is 37 before he becomes a staff surgeon, and until 45 before he becomes a fleet surgeon, and he may be selected for the higher branches at about the age of 52. No other branch of the Navy has to wait so long to attain corresponding rank. Comparison of ages with the executive or combative branch of equal relative rank will clearly show this—surgeons 25, staff surgeons 37, fleet surgeons 45, deputy inspector-general 52 ; lieutenant 21, lieutenant after 8 years' service 29, commander 33, captain 40.

Under these conditions the naval medical officer may be placed in the position of having to ask leave from a man who is considerably his junior in the service.

To make the service popular I consider promotions to staff

surgeons should be after 8 years' service, and to fleet surgeons after 16 years' service. Since this was written I am informed on the best authority that this change in promotion is to be carried out in regulations which will be very shortly issued, having received His Majesty's approval.

2. *Foreign Service.*—It is urgently needed that some reform should be made as to the regulation of home and foreign service. At present a staff surgeon returning home after three years' foreign service (which may be in the unhealthy climates of the East Indies or West Coast of Africa, for which he gets no extra pay) after six weeks leave (that is, only 14 days for each year spent abroad) is most probably appointed to either the home, cruiser, or channel squadrons. These fleets have no fixed port, and are continuously cruising about. Consequently, the staff or fleet surgeon, if married, sees little or nothing of his wife and family, and after from 18 months to two years of this so-called home service he is again sent abroad for another term of foreign service. To remedy this there should be a fixed regulation that every medical officer returning from a foreign station should be entitled to a period of shore or harbour service.

3. *Compulsory Half-pay.*—This has by no means been done away with; the great objection is not so much the loss of annual income, which is bad enough, but also the loss of time. The time spent on half-pay has to be made up before retirement.

4. Another grave injustice is that a number of medical officers wait patiently until they have completed 20 years' full-pay service (the time spent on half-pay having to be made up), this being the earliest period when they can retire with a pension. But when this long looked forward to time has arrived it sometimes happens that the unfortunate medical officer is serving abroad. He is informed on applying for retirement that his services cannot be spared, even if he offers to pay his own passage home and his successor's passage out. He is, therefore, liable to be retained on a foreign station for a period of 3 years longer.

5. *Control of Sick Berth Staff.*—The P.M.Os. of naval hospitals have no power to deal with breaches of discipline on the part of the sick berth staff that serves under them. An inspector-general, who is supposed to rank with the rear admiral, before he can get a man punished has to report him to the executive authorities of the local depot, and much time is wasted before the charge is heard or the offender punished. Surely the sick berth

staff ought to be under the control of the naval medical officer, just as the men of the R.A.M.C. are under the control of their officers in the same corps.

6. *Medical Guard.*—It is the recognised custom in the present day when two or more ships are in harbour together for the naval medical officers to take it in turn, day about, to keep medical guard. This means that a medical officer of the ship having the medical guard has to remain on board his ship to be ready to go to any emergency case in any of the other ships in harbour. Although this is practically the custom, and works admirably, still it is not as yet embodied in the King's Regulations, and the result is that some captains still insist on always having one of the two medical officers belonging to their ships on board, although the medical officer of the guard is close alongside and capable of being on board in five minutes on signal being made for him. To be kept on board every alternate day for the whim of an individual captain is very galling, more especially as it is only in one or two ships in a fleet. To obviate this grievance it should be clearly laid down in the regulations that medical guard is to be recognised in all ships.

There are many other petty disadvantages, which irritate the naval medical officer but which a little re-arrangement could easily remedy without any loss of discipline or efficiency. For instance, there is no encouragement of individual responsibility at medical surveys. An inspector-general ranking as rear admiral is forced to sit under the presidency of a post-captain, or even a commander, who is years his junior in service. Of course I do not wish to deny that the captain should command his own ship, but I do think that if the status and position of the naval medical officer is to be upheld he should have entire control of the sick and the sick berth staff, and should be able to punish them for breach of discipline in their special work, should necessity arise, same as in the R.A.M.C. A new set of regulations has just been issued, and some of the matters I have complained of have been remedied, but many grievances still exist which I fear if not removed will act as a deterrent to the entrance of efficient men into the service.

The present Director-General, Sir Henry Norbury, K.C.B., has done more to improve the service than any of his predecessors, and I know he has the interests of the service at heart, and is only too anxious to see his branch brought into efficiency and popularity. But I have no doubt that, when he suggests improvements,

he is stopped by the Treasury, which will not sanction any improvement that costs additional money. The Government yearly expends millions on the building of warships intended to inflict death and suffering on our fellowmen. How much more, in the cause of humanity, should they be willing to spend a few thousands on a branch of the service whose mission it is to prevent or cure disease and alleviate the suffering inflicted by shot and shell on their fighting men?

If the distinguished Director-General, Sir Henry Norbury, fails to induce the Admiralty and the Treasury to amend these grievances by mild expostulation, these authorities will be forced in the long run to yield, because men will not go where discontent and limitation of status are maintained. In the end the Admiralty will have to follow the example of the Army, and at once accede to the suggestions of an energetic and independent civilian Advisory Board, constituted on the same lines as that of the R.A.M.C., but called in the Navy the Medical Consultative Board.

The R.A.M.C. now gets plenty of well-qualified candidates, but in the Naval Medical Service there is a deficiency of over 50 surgeons. But I hope before long to see all these grievances mentioned removed and good and efficient men once more induced to enter it in large numbers.

I would now like to say a few words about another service which has somewhat grown into disfavour—

THE INDIAN MEDICAL SERVICE.

I have just read in the *British Medical Journal* of Oct. 3rd an official memorandum, dated Indian Office, October, 1903, in which will be seen certain alterations effected for the improvement of the service :—

First, I find by the new regulations that the pay of the Indian military medical officer is increased, although the increase sanctioned is not very large. A lieutenant's commission will in future date from the date on which his course of instruction commences, and he may be promoted to captain on completion of 3 full years' service, the same as the R.A.M.C., but he will be required after 18 months' service to pass an examination in military law and military organisation.

The unemployed pay of a lieutenant in India will be in future Rs. 420 a month instead of Rs. 350, while when placed in permanent medical charge of a regiment his pay will be Rs. 500, in

place of Rs. 450. On promotion to captain, if in substantive charge he will receive Rs. 550, in place of Rs. 450. After 7 years' service there is an increase from Rs. 600 to Rs. 650, and after 10 years' service from Rs. 600 to Rs. 700. The pay of a major after 15 years' service who is in substantive charge is increased from Rs. 800 to Rs. 900, and of a lieutenant-colonel from Rs. 1,000 to Rs. 1,259. A lieutenant-colonel who has 25 years' service will in future receive Rs. 1,300; if in the substantive charge, and if specially selected for increased pay, Rs. 1,400. The pay of one surgeon-generalship is raised from Rs. 2,700 to Rs. 3,000. In justice to the officers now serving it is hoped that the regulations will be retrospective as far as they are concerned, and that the regulations will have a retrospective effect from the date of the increased pay under the recent warrant granted to officers of the Royal Army Medical Corps serving in India, to which change I alluded in my Address last year.

Following the precedent set of the case of the Royal Army Medical Corps, it is now provided that specialist pay at the rate of Rs. 60 a month will be granted to officers below the rank of lieutenant-colonel who may be appointed to certain posts, and another clause provides that extra furlough may be granted to officers desirous of pursuing special courses of study at the rate of one month's furlough for each year's service up to 12 months in all. There are other important improvements set out in this memorandum, but there are grievances and drawbacks still remaining. When these are remedied I believe the service will be popular again, and many efficient young qualified men will be eager to enter it.

The next and last service I have to allude to is nearer home; it is

THE IRISH POOR LAW MEDICAL SERVICE.

Last year I thought I said all that the head of a College could possibly say to you on the subject. But 12 months has proved to me that if the poor law medical officers are to be supported in their fight against injustice and dishonour it behoves all those in any position in the profession to speak in season and out of season against the gross treatment which is meted out day by day to our medical brethren whose unfortunate lot it is to serve in the Irish Poor Law Medical Service. The Right Hon. Mr. George Wyndham, M.P., the able Chief Secretary for Ireland, has since this time last year piloted a most successful Bill through Parliament

for "the better union of hearts" and the settlement of the land question, and for the satisfaction and contentment of all parties concerned. But if I am asked what has been done for the Irish dispensary doctor, I regret to be obliged to say—*Nothing*.

Now let me enumerate again the grievances and disabilities under which an Irish dispensary doctor labours at the present time, as related to me by one who has been an Irish dispensary doctor for over 30 years. His first and most pressing grievance is that in many instances the salary is not sufficient to pay the expenses of working the district. Then the law declares him qualified for superannuation, but leaves him entirely in the hands of men who are a changing body liable to be swayed by the transient influences of the moment, and who perhaps resent a dispensary medical officer as being, in the words of a popular M.P., "A blue-blooded official."

When such is the feeling of a Member of Parliament towards our dispensary medical officers one can easily guess in what estimation he is held by the rank and file. The dispensary officer becomes sick and tired of the everlasting abuse showered upon his colleagues at the different weekly meetings of the Boards of Guardians throughout the country, and the treatment of the Local Government Board is no better. They heap new duties on their medical officers, and when for once a generous and reasonable board of guardians grants an increase of salary they will not sanction it. Then the mode of election is corrupt, root and branch. Think for a moment of the position involved in having to solicit the votes of members of boards where he is fully conscious that the most incompetent member of the profession who had local or political influence would beat the President of the Royal College of Surgeons for a dispensary or union if he were a candidate for one.

The pressing grievances of the service are therefore narrowed down under six heads :—

1. *Insufficient Salaries*, which should be raised to at least £200 a year.

2. *Travelling Expenses*.—A medical officer ought not to be compelled to pay the travelling expenses incurred in the discharge of his public duties. No other service is asked to do so without payment.

3. *Annual Holidays*.—Dispensary Rule 28 should be amended so as to give to medical officers the leave the Local Government Board

intended as a matter of right they should have—viz., a full month's holiday in the year.

4. *Incidence of Expense.*—Clause 6 of the Local Government Amendment Act should be repealed so as to permit the recoupment from Imperial Sources of the full half of the salaries paid to medical officers, and not to limit it as it does now to the salaries previously paid.

5. *Superannuation.*—Superannuation to medical officers should be paid on the Civil Service scale, and it should be mandatory and not optional.

6. *Mode of Election.*—This should be placed under Civil Service Rules, and each candidate should enter the service by competition after examination.

The amelioration of the present conditions rests with yourselves. Many of you will be shortly qualified; vacancies occur nearly every week; but I urge you in the strongest manner to refuse to enter a service which imposes such degradation on its officials. Never before in the history of Ireland has the Service risen as one man to revolutionise old traditions by joining the Irish Medical Association, and so enrolling recruits who before were afraid to utter one word of complaint lest dismissal should follow.

You ought to prefer to break stones on the roadside sooner than enter a Service which employs you on starvation terms, and the recreants who are mean enough in face of such warning to compete for dispensaries at a lower salary than £200 a year deserve to be regarded as unworthy of the name of men. If they are subsequently treated badly it is only the proper punishment for persons so far forgetful of the duty they owe to their profession and the respect they owe to themselves.

I am well aware of the responsibilities I incur as President of this College in speaking in such condemnatory terms of a Service, even though I believe it to be the worst in Europe. But I urge you to stick together. Become members of the Irish Medical Association, be determined, and the Government must give way, if the sick poor are to be properly relieved and the Service made efficient.

I would also impress on those of you who will soon be qualified the necessity of joining as members—

THE ROYAL MEDICAL BENEVOLENT FUND SOCIETY OF IRELAND,
an object to which every practitioner should at once begin to subscribe. It is, in fact, a form of personal insurance which, like

the "widow's cruse of oil," will never fail to be of use and advantage.

None can tell when adversity will overtake him—in the form of loss of money or post, through ill health or death, and it is comforting to know that through your being a subscriber to the Medical Benevolent Fund before such calamity overtakes you the Committee will always give your wife and children preference. Let the first money, therefore, that you earn after qualification be handed to the Royal Medical Benevolent Fund, and lay up there a treasure which in need and distress will be at the disposal of those who are near and dear to you. Another piece of advice I will give you—the moment you are a member of the profession join a—

MEDICAL DEFENCE ASSOCIATION,

It costs only 10s. a year, and may be of vast importance to you later on in the practice of your profession. The value of insuring against attacks which are often made against medical men by unscrupulous persons for the purpose of levying blackmail is well known. And there is no doubt that if all members of the profession would join the Medical Defence Association many legal actions and many cases of threatening would be done away with. A doctor in this city who had a personal charge levelled against him by a former patient was mulcted by a large amount of costs in defending his character against an unfounded charge. If he had been a member of the Medical Defence Union the case would have been taken up by its solicitor and defended by its funds. Members of the profession are liable at any moment to be assailed by the attacks of evil-disposed persons, and it behoves all those who value their reputation to prepare and insure against such a contingency.

ABSENCE OF STATE RECOGNITION FOR THE PROFESSION.

We must also continue to fight against ignorance and misconception until the general masses are educated to understand the position the profession ought to occupy. One depreciating influence is the absence of suitable State recognition for the leaders of medicine and surgery. In the constitution of our governmental system there should be (and it is imperatively called for) the appointment of a Minister of Health and Sanitary Science, who should occupy a seat in the cabinet, only to be filled by a physician or surgeon of eminence and ability, not bestowed upon

some worn-out practitioner when his energies are effete and his brains past their work. My suggestion may be Utopian ; but if England intends to take a creditable place in the future amongst the great nations of the world she will set her house in order, for government in the present day and government a hundred years ago are very different matters. Scientific Medicine must, and will, take an exalted position in the world when the component parts of the great Ship of State are properly constituted. The profession of law, with its legal peers and lord chancellors, the army and its military lords, and the church with its spiritual peers, must in justice make room for their Cinderella sister—Medicine. Therefore the Minister of Health and Sanitary Science must be an appointment in the near future. I presume there is no one among us that will doubt my assertion that the entire community, from the peer to the peasant, stands indebted to scientific medicine and surgery. Have not all our investigations from the earliest times been directed in the most unselfish manner for the preservation of man's best interests—viz., health and the alleviation of human suffering ? Again, the Privy Councils of England and Ireland have been largely composed from time immemorial of lawyers, judges, military men, divines, and peers of the realm. but doctors have been omitted from the lists of these supreme advisers of the Executive. Would anyone with a grain of sense give the reason of this ? Why should the leaders of our profession in Ireland not be entitled to be Right Honourables as well as many other men far inferior, it may be, in birth, position, and scientific attainments. On what grounds are we excluded as a class ? Simply, I would say, because we as a body have been over-modest in asserting our claims for public recognition as exponents of sciences that are yearly becoming more and more important to the well-being of the community.

THE IDEAL PHYSICIAN.

I have mentioned the word ideal in describing a physician ; let me tell you in a few words what I mean by the term.

The profession of a doctor is a noble one and should ennoble those who practise it, deepening the sympathies and idealising the life. No man knows better the frailties of his fellow-creatures than the doctor ; no man has more reason, perhaps, to think pitifully or severely, or even contemptuously, of mankind. But there is no man more broad in his charity, more lenient in his

judgments than the ideal doctor ; he hears everything, yet he betrays no confidence. In many families the doctor is held in as great love and reverence as the priest. He is with them in trouble and in joy, and from his lips issue the fiat of life and death. He must bend his ear to catch the first wailing cry when the infant takes up the burden of life, the last tired sigh when the old man lays it down. He has to wrestle with the great foe of humanity at every turn ; to him the blanched mother may owe her fluttering life when giving birth to another ; it is he who, when friends are paralysed with fear of contagion, must face the hideous features of cholera, typhus, and small-pox. He must show a calm front to the demands made upon his vital energies, and the exaggerated expectations formed of his power to aid, while science stands humbled and impotent in the presence of death. With all his deep learning the ideal doctor is modest, with all his knowledge of the world he is tolerant—he is wise as well as witty, gentle as well as powerful, a tower of strength to the weak, and ever on the alert to shield the reputations of his patient and of a brother practitioner. It is a life of splendid opportunities for good if lived as the ideal doctor may live it, and it is open to you all to aspire, at least, to that ideal.

Many of you are now, as I have said, on the threshold of active life. There is alway something that disposes to reflection in the communion of mind between one who is on the verge of manhood and one who has already passed its meridian. It is natural at my age, when looking back at a long life of professional toil and anxiety, that many things should wear a more serious aspect—I might almost say a sadder one—than at yours. Yet I confess that when I see around me so many robust frames and ardent spirits, trained with so much care for the service and commonweal of king and country, I am disposed to view your future prospects as hopefully as you do yourselves. May all success attend you in your future endeavours. May the name of Irishmen in your safe keeping continue to be held in high honour amidst the nations of the world. And if in the days of your matured success your thoughts should wander back to this day and to the memory of him who, through the favour of the Fellows of this College, is in the position of addressing you, think of him as of one who, while he lived, never ceased to entertain a warm sense of your kindness and a lively interest in your welfare as true gentlemen, and as nearly as you can become ideal physicians.

*PRESENT STATE OF THE IRISH POOR LAW MEDICAL SERVICE.**

By R. F. TOBIN, F.R.C.S.I.

ON the present occasion it is my duty to give the Address introductory to the approaching Session. At the outset let me thank the many visitors who have honoured us with their presence, welcome the students newly joined, congratulate the prize-winners, and say farewell to those who, being duly qualified, are about to lay their own hands on the rudder which is to guide them through life. The past academic year also claims a few words of recognition. It was brimful of work, and of eminently successful work, as the statistics show, and even our failures, when we look into them, only tell us more bravely to go on. In the first place we all but won the football cup. Some may object to this being classified as work, but really Vincent's men do all that comes across them so heartily and cheerfully that it is hard to say when they are at work and when at play. But, since it is for Mr. Paget O'Brien Butler and not for me to tell the new men the story of last year's matches—our many victories and our one defeat—and to point the moral of the tale, I may pass on to the work done within these walls.

During the past Session 623 medical and 1,045 surgical cases were treated in the wards, and 18,000 cases in the dispensary.

All these cases were most carefully looked after, and in the tending of them a large number of students and nurses gained skill and experience. There is not, believe me, any egotism in these remarks. All that the teachers of St. Vincent's Hospital Medical School claim is that we are happily situated; that we are stimulated by the enthusiasm of the young minds in our classes; and that working with a Sisterhood whose charity is greater than their own needs we are enriched by its overflow.

Thinking of a special subject for this Address, the two that present themselves to me as being uppermost in our minds at present are the state of the weather and that of the Irish Poor Law Medical Service. Both are equally bad; but as the weather is a more difficult and more medical subject, I shall leave it for Dr.

* An Address introductory to the Medical Session, 1903-1904, delivered at St. Vincent's Hospital, October 6th, 1903.

M'Hugh next year, and consult with the lately qualified students as to whether they should or should not take dispensary appointments under the present conditions.

This subject is not grateful to me. Firstly, it is threadbare. Had I all the eloquence of the Irish Bar, it would not be possible to say of it anything more or in a better way than has been said by others—notably by my colleague Mr. M'Ardle from this very desk five years ago. Secondly, I have to commend to you a line of action which is foreign to us alike as men belonging to a generous race and to a generous profession.

However, this matter is pressing. There is unanimity amongst us that something must be done to improve the position of Irish Poor Law Medical Officers, and, therefore, I think it is the duty of each one of us to bring the subject before the public on every possible occasion, and to continue hurling truisms and commonplace facts into the street till those in authority give active consideration to them.

What is the case of the Poor Law Medical Officers? A price they say was put on our services which, at the time it was fixed, was certainly not too high. Since then the cost of education has doubled, our market value has doubled, yet we are refused any increase either of privileges or pay.

From the *Cornhill Magazine*, in which there lately appeared some interesting articles on "Prospects in the Profession," I take the following extract:—"The popular mind is still so far under the influence of modern Victorian literature that it may not be useless to say that a medical school in the present day, whether conducted by a university, a college, or a metropolitan hospital, is a very serious and highly organised academic institution spending vast sums on its museums, laboratories, and classrooms, and carrying on its work by the help of a large staff of demonstrators, lecturers, tutors, and clinical teachers. The modern student, if he wishes to qualify at all, is one of the hardest worked young men to be found. From lectures to practical observation in the laboratory, from laboratory to clinical study in the wards and out-patients' rooms, thence to class examinations, and home to master his text-books, his days are spent in a ceaseless round of duties, and his vacations are cut shorter and shorter as he goes on. Mr. Robert Sawyer, it may be once for all understood, is as much like a contemporary Vincent's man as the Saracen's Head is like the Shelbourne Hotel. A modern medical

school is no place for an idler, and idlers are sooner or later requested by the authorities to move on . . . After five or six years of such work, the aspirant gains his legally recognised diploma or degree and enters his name on the register."

In this paragraph is to be found the explanation of the present discontent. A man after five or six years of arduous study, and after seeing many fall upon the way, completes his course. He takes employment in the Poor Law Medical Service, and he finds himself treated as regards pay and consideration as if he were a Bob Sawyer. The inadequacy of the pay of the dispensary doctor has been set forth in various ways. For instance, it has been shown that, in many districts, if these medical officers were allowed merely the rate of car-hire given to other Government officials and no pay whatever, they would be better off than they are now. To me myself the condition of things was brought home very forcibly in this way. There called upon me some time ago an old school-fellow. We had studied together at Clongowes, and also on the benches on which you now sit. When qualified, he had taken a dispensary in the West of Ireland. I had gone into the army. We had not met for thirty years, and we naturally considered how each had fared. It appeared that, at the time of his visit, I had already been in the enjoyment for nine years of a pension of £365 a year, an annuity paid quarterly, to which every Medical Officer in the army becomes entitled practically by the mere act of living. While earning this pension I had had in one sense a much better time of it than had he. I had always been more highly paid, and I had been given two months leave of absence every year. He, poor fellow, was in broken health, only on one or two occasions had he had a month's leave of absence during his whole thirty years, yet he was still working away day and night with an ardour that shamed me. A little later his health completely gave way, and he was accorded ungraciously, as a matter of grace, a pension of sixty pounds a year. That the contrast of the two services thus set forth is strikingly in favour of the army you will agree, and the cases, remember, are in no way exceptional. But wait awhile. At the time I speak of, when these two cases fairly represented the conditions of the Army Medical Service generally, and of the Poor Law Medical Service in many parts of Ireland, the Army Medical Service was considered such a poor one by the united opinion of Ireland, England and Scotland, that teachers in all schools advised

students not to take appointments, with the result that the conditions of that service have since been greatly improved. But, perhaps, it occurs to someone to say "Dispensary doctors may supplement their salaries by private practice, and therefore these salaries should not be on the scale of the military service." This is, no doubt, true in some districts. But there are others, and unhappily not a few, where the inhabitants are so poor, the doctor attending them is so removed from the public eye that his position is comparable not to that of an army surgeon, but to that of a civil surgeon in an out station in India, and it demands, therefore, the larger pecuniary recognition which the latter receives.

However, away with comparisons. Far be it from me to imply that Medical Officers in any branch of the public service are over paid, further still to urge promising young scientists, whose services are sadly wanted in this slowly developing land of ours, to take their energy and skill elsewhere. Quite different considerations urge me to speak to-day. As long as I have a voice to raise, every word of mine shall go to exalt the medical profession in public estimation, and to impress on students that no land requires the services of every one of her children so much as does Ireland just now.

As regards our profession, it is, believe me, most short-sighted policy for one branch of it, or even for one member of it, to be jealous of another. Our motto rather should be "Help one another." We are all inter-dependent, and what honestly raises one eventually raises all.

Now as regards the cause of the present quarrel—and indeed of all quarrels where the profession demands higher terms than the public are prepared to give—when we look closely into it, we find that it is due to the fact that while we offer to the public certain high-class goods, not low in price, but of excellent value, what they, the men in the street, want from us is a low-class article that would be dear at any price. You who have been recently qualified or are about to be so, have probably uppermost in your minds as regards your profession, ideas such as the following:—You find yourselves anxious to go on adding indefinitely to the knowledge you now possess, to put that knowledge at the service of the public for payment when you can, gratuitously when occasion demands, and whether for payment or no payment, never to give anything but your best. But form what conceptions you may of your rôle in life, you will find a

large number of the public—a number daily growing larger—who have made up their minds as to what they will have of you, and you will deny it to them at your peril. In the minds of such men the doctor seldom looms larger than one who prescribes a mixture, a pill or a blister, to which armoury have of late been added Roentgen rays and tabloids. It has been so in the past, it is so to-day, with the cultured as well as with the illiterate.

Let us take cases. We always study here from cases. Now, if I ask you to look back through the last few centuries and to tell me what man stands out pre-eminently as a great block of sense, I have no doubt most of you will answer Dr. Johnson. His wisdom is embodied in our household words. He stands great, because he *was* great, and because Boswell has preserved him for us in a living shape. It is a life one never tires of reading. Every first year student should buy that book, and dividing it into parts, have it bound up with Birmingham's "Anatomy," Kirke's "Physiology," and Tobin's "Synopsis of Surgery." For surely it is not by anatomy and physiology and surgery alone that a man grows wise, no, nor even by a study of Fraser's great work on the topography of the brain, but by keeping himself in touch, as far as he can, with the great men, past and present, in every branch of literature and of art. Well, anyhow, Johnson was a wise man except on the subject of medicine. Having had a "paralytic stroke" he writes to Mrs. Thrale as follows:—"I suppose you may wish to know how my disease is treated by the physicians. They put a blister on my back, and two from my ear to my throat, one on a side. The blister on the back has done little, and those on the throat have not risen. I bullied and bounced (it sticks to our last sand) and compelled the apothecary to make his salve according to the Edinburgh dispensatory, that it might adhere better. I have now two on my own prescription. They also give me salts of hartshorn, which I take with no great confidence. But I am satisfied that what can be done is done for me." Isn't that true to life or rather to sickness? You see it is to the blisters as amended by himself, made according to the "Edinburgh dispensatory," that he pins his faith. These adhering, he feels—oh! thrice blessed phrase—that "what can be done is done." That once said, whatever the result, the physician walks out with his head in the air.

That is case one. Now for case two. Once upon a time a young fellow just married bought a practice in a manufacturing district

in England where I was quartered. He gave for it one thousand pounds, the fortune he got with his wife—being at the rate of one year's purchase. He was probably a Vincent's man, for he knew his work well and was full of enthusiasm and the highest ideals. At the end of fifteen months he moved away with his wife, but without her fortune. Asking the people amongst whom he practised the cause of his failure, I was told that he was a humbug, that he knew nothing. "Why," it was said, "he would sometimes take a quarter of an hour to examine you, whereas the man he bought the practice from could see his job the moment he looked in your face." To be looked in the face and get a bottle was all they wanted from their medical attendant.

The third case is more up-to-date. It presented itself while I was sitting a few days ago in a railway carriage, in the shape of one of our leading citizens who occupied himself during the first part of a short journey in prescribing for people present and people not present. For instance, he told a lady who said she had a child at home with a sore throat, to give him a tabloid, which she could get at any chemist's, of five grains of phenacetin, and to repeat the tabloid in three hours, when she would find all the symptoms relieved. After this he read for a time his evening paper, and struck by something in it, he turned to me and said, "Now, doctor, how do you account for the high mortality of Dublin?" Seeing me trying to hide a smile behind my book, he added, "It is no laughing matter, my dear fellow."

Now, gentlemen, if the Irish poor are to be treated simply with blisters that will stick, or with mixtures after they have been looked in the face, or with tabloids after they have described the nature of their disease, we are, I think, all agreed, that the present pay of the dispensary doctor is sufficient for the occasion. But is this, then, the Practice of Medicine? It is not the practice of medicine as it was generally known in Ireland till we became infected with ideas from across the water. We are continually being told how they manage things better in England, and how our system of medical relief pauperises the people. The facts are that unhappily a large number of our people *are* paupers, or so poor that no decent man would expect a fee from them, but it was not the medical profession which made them so. Secondly, in no land does the medical profession stand higher or conduct its practice better than in Ireland. At a time when in England a medical practitioner had to take his way through the back

door of his wealthy patients, his fellows in Ireland were associating on terms of perfect equality with everyone in this land. Why is this? Simply because we have always treated, and the public have always encouraged us in treating, our rôle in life as a profession, and not as a trade.

Now, what is the difference? Well, you will find one in the resolution, which I took for granted just now was in the minds of each of our newly qualified men—viz., that whether for large fees or small fees or no fees at all, he would never give anyone he prescribed for anything but his best. Now, this requires in most cases a full examination of your patient and a careful consideration of his case. There is a sum of money, it may be two guineas, or one guinea, or five shillings, which, taking into account your position, your necessary expenditure and other things, fairly represents what has been done. If you take less, you are inclined to scamp your work. I speak not absolutely, but with the relativity which applies to all things human. Well, so, working always at your best, you establish a habit; there is but one class of article in your shop, and if a poor person comes along, you give him either that article or nothing at all. The well-to-do public, at least the more enlightened of them, join with us in taking this view of the question. They see that they must suffer from any deterioration in our profession, that they are often benefited by the skill gained by those who practice amongst the poor; and this, combined with less selfish motives, make them satisfied to pay fees not based on purely mercantile considerations. So there comes to be between the well-to-do, the poor, and the doctors a mutual helpfulness, the interchange of which constitutes the salt that saves us from putrefaction.

I am not one of those who object to counter practice in a chemist's shop. The chemist is a mere vendor of medicine. In Ireland the prescribing and selling of medicines have, I am glad to say, been kept as much as possible apart. If a man feels weak in the street, why should he not be as free to go into a chemist for a drachm of spirits of hartshorn (Johnson's remedy) as into the next public house for a glass of whisky? But I would object to the chemist, because he happened to hold a diploma in medicine, looking the customer in the face and charging fifty times the value of the drug dispensed.

Now that motor cars are about, a better idea of things may become prevalent. When a man has spent three hours on his

back, looking up into the works of his car, taking it to pieces, and putting it together again, and then walks sadly to the nearest railway station, the complexity of some machines, amongst which he may rank the human body, may dawn upon him, and with it may come an inkling that the human body cannot be properly attended to when out of order for a sum that a mechanic would refuse for almost any job.

But as all have not motor cars, would it not be well if the profession were to formulate what it considers the province of a dispensary doctor to be, and held up this definition before the public on every occasion? It is, however, no easy task to do so in a clear and simple way. In place of defining its limits it is easier to ask, Whither do they extend? What is it which does not influence our health? The air we breathe, the water and food we consume, the work we do, the sights we see, the games we play, everything which acts upon us, comes within the doctor's scope. This is no vague generalisation, but a hard practical fact. The cultured and well-to-do are, it is true, becoming educated in domestic hygiene, but it is not so with the poor. To limit the treatment of their ailments to a bottle of medicine is a mockery and a crime. The part, therefore, that the dispensary doctor has to play is a very large one. He is many specialists in one. There is practically no limit to the good he can do if he is a man of sense, ability, and skill. It is his to guard against the occurrence of disease, to limit its spread, to help those attacked in their struggle with it, to raise the physique, and forward in every way the comfort and well-being of those committed to his care. This is no mean task, and surely the man who is called upon to undertake it may put forward the three demands of the Irish Medical Association—viz., 1st, a competence (£200 a year while he works); 2nd a moderate pension when he is no longer able to do so; and 3rd a month's leave of absence every year in which to recuperate his health or to attend a post-graduate course so as to keep himself *au courant* with the advance of science.

At the outset of this Address I remarked that the necessity to remedy the present condition of things is urgent. There is however, another reason for pressing on with energy just now. It is that we have in office a Chief Secretary and an Under-Secretary possessing, as we believe, the will and the ability to help us. Their records fill us with hope. How can we best lay our case before them? If only you, Mr. Chairman, could take them for a drive

in a motor car through the scenes of your early labours ! It would be a pleasant tour, for it would be through many beautiful places ; but it would also be a sad one, for at every turn there would be something speaking to thoughtful minds of present misery and neglected opportunities. The ruined cabins on the hillsides must awaken thoughts of the brave men born and reared in them, and so of battles fought and battles yet to be, of a chain of emigration, of so much gone over the ship's side that one stands in dismay lest the whole should follow. With these thoughts uppermost you would naturally turn to see what was being done to preserve the remaining few. In the houses you enter there is not much of all that the Twentieth Century is proud of. On every side you see signs of disease spreading unchecked. The young maimed or dying of tuberculous disease, the old of cancer ; lunacy on the increase, typhoid and typhus calling forth heroism and striking down those who display it. Perhaps in some cottage you may come across a dispensary doctor doing what he can to cope with the difficulties. It may be a sore throat which, if not isolated at once, would spread diphtheria or scarlatina far and wide, one which my friend of the railway carriage would treat with five grains of phenacetin ; or it may be a crippled child for whom a Thomas's splint is necessary. If the latter, the doctor will be trying to collect twenty-five shillings, the price of the splint. No doubt the Chief Secretary will give a pound. Perhaps when you get outside he may ask, "Where will the other five shillings come from ?" Be sure you tell him the custom of the country, "The doctor will give that himself," and do not fail to add "and well he may out of his fine salary."

A dispensary doctor—what a quantity, what a vast, unmeasurable quantity, of grand unselfish work is covered by that name. Here and there, it is true, are to be found a few careless and intemperate in many ways. The casual observer is impressed by them ; he goes his way ignoring the hundred others who day and night are expending their best energies in the service of the poor. Some pathetic incident gives the general public a glance at this everyday life, and they forthwith stand amazed at the heroism therein displayed. It does not detract from the honour of those who wear the Victoria Cross to say that thousands who have shown an equal bravery are going unregarded through life. Could we but resuscitate and have amongst us for this occasion the late Dr. William Smyth, of Burtonport, how his manly heart

would respond and glow with pride to my saying that the work he died in doing is being done in the same heroic way by practically every dispensary doctor in Ireland whenever occasion demands. To how many a one could not we who know them apply the words of Browning inscribed on a tablet erected in Templecrone Church in memory of Dr. Smyth :

One who never turned his back but marched breast forward,
Never doubted clouds would break,
Never dreamed, though right were worsted, wrong would triumph.
Held we fall to rise, are baffled to fight better,
Sleep to wake.

In saying this I am not indulging in mere verbosity. I am simply stating matters of fact. From the *Londonderry Sentinel*, of August 25, I learn that at least Dr. Brendan MacCarthy, a man of whom we at Vincent's are justly proud, and who worked with Dr. Smyth on the memorable occasion two years ago, is still marching, as he has always marched, "breast forward." I read from that paper :—

"Dr. MacCarthy, addressing the Guardians, said, as they were aware, typhus had reappeared in Arranmore. He was on the island last week, and visited not only the houses in which the outbreak occurred, but the houses upon which he had occasion last year to report unfavourably, and he did not find any real improvement. Typhus fever was essentially a disease of dirt and overcrowding. It was the scourge of gaols and armies before the importance of cleanliness and air space was understood. Typhus was disappearing from the face of the globe because it could not stand for a moment before sunlight, fresh air, and soap and water. But in different parts of Ireland the houses were of an unhealthy description. The windows were not of a proper or sufficient size to let in God's pure sunshine, the floors were of clay, the roof defective, and the walls damp. The family was huddled and crowded in the house, and lay in unhealthy box-beds, with which they were all familiar. Those were the conditions for breeding typhus, and naturally they had outbreaks in such a house, for every cause for such was there, and very plain to be seen. Then, again, when there was such a loathsome and infectious disease as typhus in the house, the priest or the doctor who went into that house did so at the imminent risk of his life. But that same case could be visited and nursed with comparative safety if the fresh air and sunlight were allowed to come freely into the house and dilute the poison."

On resuming your journey, you will pass many a pleasant-looking coastguard, with spyglass, scanning the horizon for smugglers, pirates, and hostile fleets, and it may occur to you to contrast this continual outlook for foes, rare and easily recognisable with the fact that never a glass is turned on the myriads of microscopic enemies which carry devastation over the country—to compare the preparedness of the country for possible enemies at sea, with its attitude towards ever-present enemies on land. To drive this lesson home, halt at the first dispensary you meet, and after talking of the recurring courses of instruction that naval officers have to go through, and the eagerness of the State to snap up every new instrument of destruction, introduce them to the whitewashed room, without one vestige of equipment, and, if he is there, to the Medical Officer of Health, a man who, perhaps, took honours in his time, but at a time when the word bacillus was unknown, and to whom there has not been given even one month for a post-graduate study in any laboratory since he took up his appointment.

But it is impertinent of me, Mr. Chairman, suggesting to you what you should say or what you should do. If you get the chance you will bring things to a successful issue. Yet one word more.

For myself I never can put in contrast these two things—the attention given by the State to the munitions of war, the neglect of the individual man—without wonderment possessing me. The lesson that is presented to us at every turn, especially in our games, seems to go unheeded. Perhaps it comes from too much reading. Every man should “pause at times from letters and be wise.” Anyhow there is not a football man here who could not tell our rulers that it is not in the make and quality of the boots of the players that victory is to be found between the posts, but in the quickness, the strength, the grit, of the individual members of the team. It is so in every manly game; it is so in the great game of war. Is it not on record that in it a strong man has won with no weapon but the jawbone of an ass?

There is a terrible to do just now over the report of the Commission on the South African War, but little attention is being paid to a paper which seems to me to contain the explanation of many of our shortcomings—namely, a communication from the Director-General, Army Medical Department, on the degeneration in physique of our population as shown by recruiting returns. Should England lose her foremost place amongst nations it will

not be for want of cordite, but from a deterioration affecting the individual man, and therefore the arts of war as well as the arts of peace. It will be because she will not listen to a voice which issues from all things as they decay—a voice that is seldom silent in this unhappy land.

'Tis life of which our veins are scant,
'Tis life, not death, for which we pant,
More life and better that we want.

Let us seek our strength in that better life and we need fear no one. Should the man of tabloids ask you how that is to be done tell him the abstruse fact that, as far at least as the physical side of things goes, it is with men as with horses and other animals. Strong, brave, and clever men tend to produce others strong, brave, and clever, and they are matured and made stronger and cleverer, not by the consumption of tabloids, but by education and by obedience to laws which are known to all who take out the Diploma of Public Health.

Gentlemen, this is one of the commonplace facts that, as I said at the opening of my Address, we must continue hurling into the street till we awaken the public to its importance. Once it is practically grasped, forthwith will come a recognition of the true rôle of that composite individual, an Irish Dispensary Medical Officer, and a redress of his grievances. In and out of season the profession has tried to force it on the attention of the Government, but in vain. The all-importance of the issue and the lethargy of our rulers necessitate and constitute the justification of the attitude of the profession towards the Irish Poor Law Medical Service.

Not in the interest of the individual—though his lot, however inadequately set forth by me, is hard indeed—not in the interest of the profession, but in that of the public weal do I say to you : join the Irish Medical Association and, for the present at least, leave the Poor Law Medical Service alone.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by SIR JOHN MOORE, B.A., M.D., Univ. Dubl. ;

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VITAL STATISTICS.

For four weeks ending Saturday, November 7, 1903.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending November 7, 1903, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 18.7 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,289. The deaths registered in each of the four weeks ended Saturday, November 7, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks	TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks
	Oct. 17	Oct. 24	Oct. 31	Nov. 7			Oct. 17	Oct. 24	Oct. 31	Nov. 7	
22 Town Districts	16.6	19.8	17.8	18.7	18.2	Lisburn -	0.0	22.7	9.1	27.3	14.8
Armagh -	13.7	20.6	27.5	6.9	17.2	Londonderry	10.1	12.6	10.1	16.4	12.3
Ballymena	14.4	4.8	4.8	0.0	6.0	Lurgan -	26.6	17.7	8.9	8.9	15.5
Belfast -	16.4	18.2	17.2	18.0	17.5	Newry -	21.0	22.0	12.6	25.2	20.0
Clonmel -	15.4	25.6	20.5	5.1	16.7	Newtown- ards	40.1	22.9	5.7	17.2	21.5
Cork -	13.0	19.9	13.7	15.1	15.4	Portadown -	5.2	10.3	10.3	10.3	9.0
Drogheda -	24.5	24.5	0.0	12.3	15.3	Queenstown	6.6	13.2	19.8	26.4	16.5
Dublin (Reg. Area)	18.6	21.5	21.2	21.7	20.8	Sligo -	0.0	38.4	4.8	0.0	10.8
Dundalk -	8.0	0.0	12.0	8.0	7.0	Tralee -	0.0	37.0	15.9	5.3	14.6
Galway -	11.7	23.3	11.7	19.4	16.5	Waterford -	31.2	23.4	31.2	13.6	24.9
Kilkenny -	9.8	29.5	44.2	49.1	33.2	Wexford -	28.0	18.7	42.0	23.3	28.0
Limerick -	18.7	21.9	10.9	23.2	17.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, November 7, were equal to an annual rate of 1.2 per 1,000—the rates varying from 0.0 in fifteen of the districts to 5.2 in Portadown. The 124 deaths registered from all causes in Belfast included 7 from whooping-cough, 6 from enteric fever, and 3 from diarrhoeal diseases. Of the 22 deaths from all causes in Cork, 2 were from whooping-cough and one was from diarrhoea.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area now consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, November 7, amounted to 232—125 boys and 107 girls; and the deaths to 166—96 males and 70 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 22.8 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the area, the rate was 21.7 per 1,000. During the forty-four weeks ending with Saturday, November 7, the death-rate averaged 23.6, and was 2.3 below the mean rate for the corresponding portions of the ten years 1893–1902.

Two deaths from influenza, one death from enteric fever, and one death from *diarrhoea* were registered during the week ended Saturday, November 7.

Tuberculous disease in its varied forms caused 36 deaths. The total includes 5 deaths registered as tubercular phthisis, 21 deaths from *phthisis*, one death from tubercular meningitis, 2 deaths from tubercular peritonitis, and 7 deaths from other forms of the disease.

Seven deaths were assigned to carcinoma and one death to *cancer* (*malignant disease*).

Twenty deaths were attributed to diseases of the nervous system, including 10 deaths from *convulsions*, all these being children under one year of age.

There were 23 deaths from diseases of the heart and blood vessels.

The total deaths (36) from diseases of the respiratory system are equal to an annual rate of 5.0 per 1,000 of the population of the Dublin Registration Area, the average rate for the corresponding period of the past 10 years being 5.1 per 1,000. The total includes 23 deaths from bronchitis, 2 deaths from bronchopneumonia, and 9 deaths from *pneumonia*, not otherwise defined.

Two deaths from accidental violence were registered.

In 9 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 5 children under one year old.

Forty-five of the persons whose deaths were registered during the week were under 5 years of age (32 being infants under one year, of whom 14 were under one month old), and 40 were aged 60 years and upwards, including 19 persons aged 70 and upwards, of whom 6 were octogenarians, and 2 (a man and a woman) were stated to have been aged 94 and 95 years respectively.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast:—

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended November 7, 1903, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	Oct. 17	-	1	1	17	-	-	2	-	3	15	18	-	-	-	57
	Oct. 24	-	2	-	24	-	-	6	-	2	8	13	-	-	1	56
	Oct. 31	-	-	-	7	1	-	5	-	1	23	14	-	-	-	51
	Nov. 7	-	1	-	12	-	-	5	-	2	12	19	-	-	-	51
Rathmines and Rathgar Urban District	Oct. 17	-	-	-	2	-	-	-	-	-	2	-	-	-	-	4
	Oct. 24	-	-	-	2	-	-	-	-	-	1	1	-	-	-	5
	Oct. 31	-	-	-	1	-	-	-	-	-	1	-	-	-	-	3
	Nov. 7	-	-	-	1	-	-	-	-	-	1	-	-	-	-	3
Pembroke Urban District	Oct. 17	-	-	-	3	-	-	-	-	-	2	1	-	-	-	6
	Oct. 24	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2
	Oct. 31	-	-	-	5	-	-	-	-	-	-	2	-	2	1	10
	Nov. 7	-	-	-	2	-	-	-	-	-	1	1	-	-	-	4
Blackrock Urban District	Oct. 17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oct. 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oct. 31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nov. 7	-	-	-	1	-	-	-	-	-	1	-	-	3	-	4
Kingstown Urban District	Oct. 17	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2
	Oct. 24	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
	Oct. 31	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2
	Nov. 7	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
City of Belfast	Oct. 17	-	-	-	23	-	-	3	-	11	13	10	1	-	-	61
	Oct. 24	-	-	-	17	1	-	7	1	10	18	10	-	-	-	64
	Oct. 31	-	-	-	25	-	-	5	-	11	10	11	2	-	-	64
	Nov. 7	1	-	-	16	-	-	3	3	7	12	11	1	-	-	54

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ending Saturday, November 7, 1903, one case of measles was admitted to hospital, and one patient remained under treatment at its close.

Fifteen cases of scarlet fever were admitted to hospital, 32 cases were discharged, and 108 cases remained under treatment at the close of the week.

One case of typhus fever was admitted to hospital during the week, and 2 cases remained under treatment at its close.

Five cases of diphtheria were admitted to hospital, 4 were discharged, and 14 cases remained under treatment at the close of the week.

Fifteen cases of enteric fever were admitted to hospital, 9 cases were discharged, there were 2 deaths, and 78 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 2 cases of pneumonia were admitted to hospital, 3 patients were discharged, there was one death, and 16 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, November 7, in 76 large English towns, including London (in which the rate was 16.1), was equal to an average annual death-rate of 16.2 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 15.8 per 1,000, the rate for Glasgow being 16.9, and for Edinburgh 14.8.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of October, 1903.

Mean Height of Barometer,	-	-	-	29.505 inches.
Maximal height of Barometer (17th, at 9 p.m.),				30.121 ..
Minimal Height of Barometer (12th, at 9 a.m.),				28.804 ..
Mean Dry-bulb Temperature,	-	-	-	49.7°.
Mean Wet-bulb Temperature,	-	-	-	47.6°.
Mean Dew-point Temperature,	-	-	-	45.4°.
Mean Elastic Force (Tension) of Aqueous Vapour,				.307 inch.
Mean Humidity,	-	-	-	86.0 per cent.
Highest Temperature in Shade (on 6th),				64.9°.
Lowest Temperature in Shade (on 28th),				33.6°.
Lowest Temperature on Grass (Radiation) (28th)				28.6°.
Mean Amount of Cloud,	-	-	-	54.1 per cent.
Rainfall (on 22 days),	-	-	-	2.613 inches.
Greatest Daily Rainfall (on 6th),				.315 inch.
General Directions of Wind,	-	-		W., N.W., S.W.

Remarks.

A month of low barometric pressure; frequent, but not very heavy, rains, comparatively high temperature, westerly (S.W. through W. to N.W.) winds, and a high percentage of sunshine. Large atmospheric depressions, accompanied by their secondaries, kept streaming north-eastwards across the North Atlantic and over the British Isles. Of these systems the deepest were observed on the 12th, when the barometer fell to 28.8 inches—or slightly below this value—over nearly the whole of Ireland, and on the 15th, at 8 a.m. of which day the low reading of 28.69 inches was recorded at Stornoway in the Hebrides.

A much heavier rainfall occurred to S.E. of Dublin than in

the City itself or in the Phoenix Park, and at Glasnevin Royal Botanic Gardens.

In Dublin the arithmetical mean temperature (51.4°) was very decidedly above the average (49.4°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 49.7° . In the thirty-eight years ending with 1902, October was coldest in 1892 (M. T. = 44.8°) and in 1896 (M. T. = 45.0°). It was warmest in 1876 (M. T. = 53.1°). The M. T. in 1898 was 52.8° . In 1902 it was 51.7° .

The mean height of the barometer was 29.505 inches, or 0.335 inch below the corrected average value for October—namely, 29.840 inches. The mercury rose to 30.121 inches at 9 p.m. of the 17th, having fallen to 28.804 inches at 9 a.m. of the 12th. The observed range of atmospheric pressure was, therefore, 1.317 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 49.7° , or 4.7° below the value for September, 1903. The arithmetical mean of the maximal and minimal readings was 51.4° , compared with a thirty years' average of 49.4° . Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* $\times .485$), the mean temperature was 51.2° , or 2.0° above the average mean temperature for October, calculated in the same way, in thirty years, 1871–1900, inclusive (49.2°). On the 6th the thermometer in the screen rose to 64.9° —wind, S.W.; on the 28th the temperature fell to 33.6° —wind, W.N.W. The minimum on the grass was 28.6° , also on the 28th. There were 2 nights of ground frost—the 27th and 28th.

The rainfall was 2.613 inches, distributed over 22 days—the rainfall was below, while the rainy days were above, the average. The average rainfall for October in the thirty-five years, 1866–1900, inclusive, was 2.940 inches, and the average number of rainy days was 18. In 1880 the rainfall in October was very large—7.358 inches on 15 days. In 1875, also, 7.049 inches fell on 26 days. On the other hand, in 1890 only .639 inch fell on but 11 days; in 1884, only .834 inch on but 14 days; and in 1868 only .856 inch on 15 days. In 1902 the October rainfall was 3.056 inches on 23 days.

High winds were noted on 14 days, and attained the force of a gale on five occasions—the 5th, 6th, 10th, 11th and 14th. The atmosphere was more or less foggy in Dublin on the 8th, 18th, 27th, 28th and 31st. The duration of bright sunshine was estimated at 132.75 hours, compared with 127.25 hours in 1900, 115.25 hours in 1901, and only 84.25 hours in 1902. Hail fell on the 15th. Solar halos were seen on the 8th and 10th.

The rainfall in Dublin during the ten months ending October 31st amounted to 27.882 inches on 196 days, compared with 12.366 inches on 123 days during the same period in 1887 (the dry year), 27.863 inches on 177 days in 1900, 20.466 inches on 145 days in 1901, 24.481 inches on 172 days in 1902, and a thirty-five years' average of 22.820 inches on 163 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in October amounted to 3.915 inches on 27 days. Of this quantity, .620 inch fell on the 10th, and .565 inch on the 25th. From January 1st, 1903, up to October, 31st rain fell at Knockdolian on 181 days to the total amount of 30.965 inches. In 1893 the rainfall in the corresponding ten months was 17.801 inches on 133 days; in 1894, 32.221 inches on 154 days; in 1897, 32.730 inches on 171 days; in 1898, 24.177 inches on 140 days; in 1899, 30.000 inches on 150 days; in 1900, 33.311 inches on 155 days; in 1901, 28.030 inches on 135 days, and in 1902, 31.811 inches on 140 days.

At Cloneevin, Killiney, Co. Dublin, the rainfall in October was 3.820 inches on 26 days, compared with .710 inch on 14 days in 1893, 6.460 inches on 17 days in 1894, 2.830 inches on 17 days in 1900, 2.520 inches on 21 days in 1901, 2.760 inches on 20 days in 1902, and an eighteen years' average (1885-1902) of 3.101 inches on 16.3 days. On the 10th .65 inch fell. Since January 1. 1903, 27.840 inches of rain have fallen at this station on 190 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 26 days to the amount of 3.38 inches, compared with 2.40 inches on 21 days in 1901, and 3.45 inches on 24 days in 1902. The greatest measurement in 24 hours was .47 inch on the 10th. The mean temperature in the shade was 50.8°, the range being from 62° on the 1st to 37° on the 28th. The mean temperature of October, 1901, was 50.0°, and of October, 1902, 50.9°.

Dr. B. H. Steede reports: At the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall in October was 4.155 inches on 26 days, compared with 3.175 inches on 13 days in 1897, 4.385 inches on 17 days in 1898, 1.484 inches on 11 days in 1899, 3.551 inches on 14 days in 1900, 3.200 inches on 21 days in 1901, and 3.577 inches on 18 days in 1902. The heaviest falls in 24 hours were .810 inch on the 10th, and .535 inch on the 25th. The highest temperature in the screen was 62.4° on the 2nd, the lowest was 34.1° on the 27th. At this Second Order Station the rainfall from January 1 to October 31,

inclusive, amounted to 35.516 inches on 201 days, compared with 26.479 inches on 139 days in the corresponding ten months of 1898, 27.643 inches on 140 days in 1899, 28.599 inches on 150 days in 1900, 24.958 inches on 142 days in 1901, and 29.742 inches on 154 days in 1902.

At the Royal National Hospital the rainfall during September was 4.335 inches on 21 days. The maximal temperature was 64.0° on the 1st, the minimal temperature was 41.6° on the 15th.

In the City of Cork, rain fell on 26 days to the amount of 5.82 inches, or 2.52 inches more than the average for October. The greatest day's rainfall was 1.21 inches on the 28th.

At the Ordnance Survey Office, Phoenix Park, Dublin, the October rainfall was 2.339 inches on 24 days, compared with 2.732 inches in October, 1902.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 52.0°, being 0.1° below the average for October during the previous five years. The extremes were—highest, 64°, on the 6th; lowest, 36.5°, on the 27th. At Bournemouth the mean was 54.4°, the extremes being—highest, 67°, on the 4th; lowest, 38°, on the 5th. The mean daily range of temperature at Kingstown was 9.8°, and at Bournemouth 10.1°. The mean temperature of the sea at Sandycove bathing-place was 53.2°, being 1.1° below the average for October during the previous five years. The rainfall was 3.17 inches on 20 days at Kingstown, whereas at Bournemouth it was as much as 7.32 inches on 30 days, the greatest fall at the late station for 24 hours being 0.70 inch. The total duration of bright sunshine was 101.7 hours at Kingstown, 107.9 hours at Ordnance Survey Office, Phoenix Park, 81.2 hours at Valentia, 98.4 hours at Parsonstown, 65.6 hours at Southport, and 71 hours at Eastbourne.

ERRATA.

The following corrections are needed in recent Monthly Reports:—

August, 1903.

Mean Relative Humidity—for 82.7 read 83.1 per cent.

Paragraph 1 of Remarks, line 17—for 24 read 38 hours.

“ 2 “ “ “ 4—for 5.4 “ 5.5 “

September, 1903.

Mean Dry Bulb Temperature— for 54.3° read 54.4°.

Paragraph 3 of Remarks, line 3—for 54.3° read 54.4°.

“ 5 “ “ 2— “ 54.3° “ 54.4°.

“ 5 “ “ 2— “ 2.5° “ 2.4°.

“ 7 “ “ 3— “ 15th “ 15th and 16th.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

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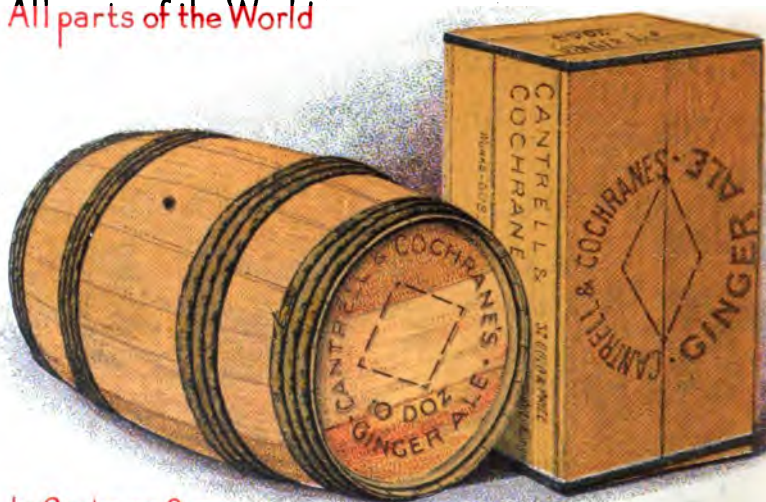
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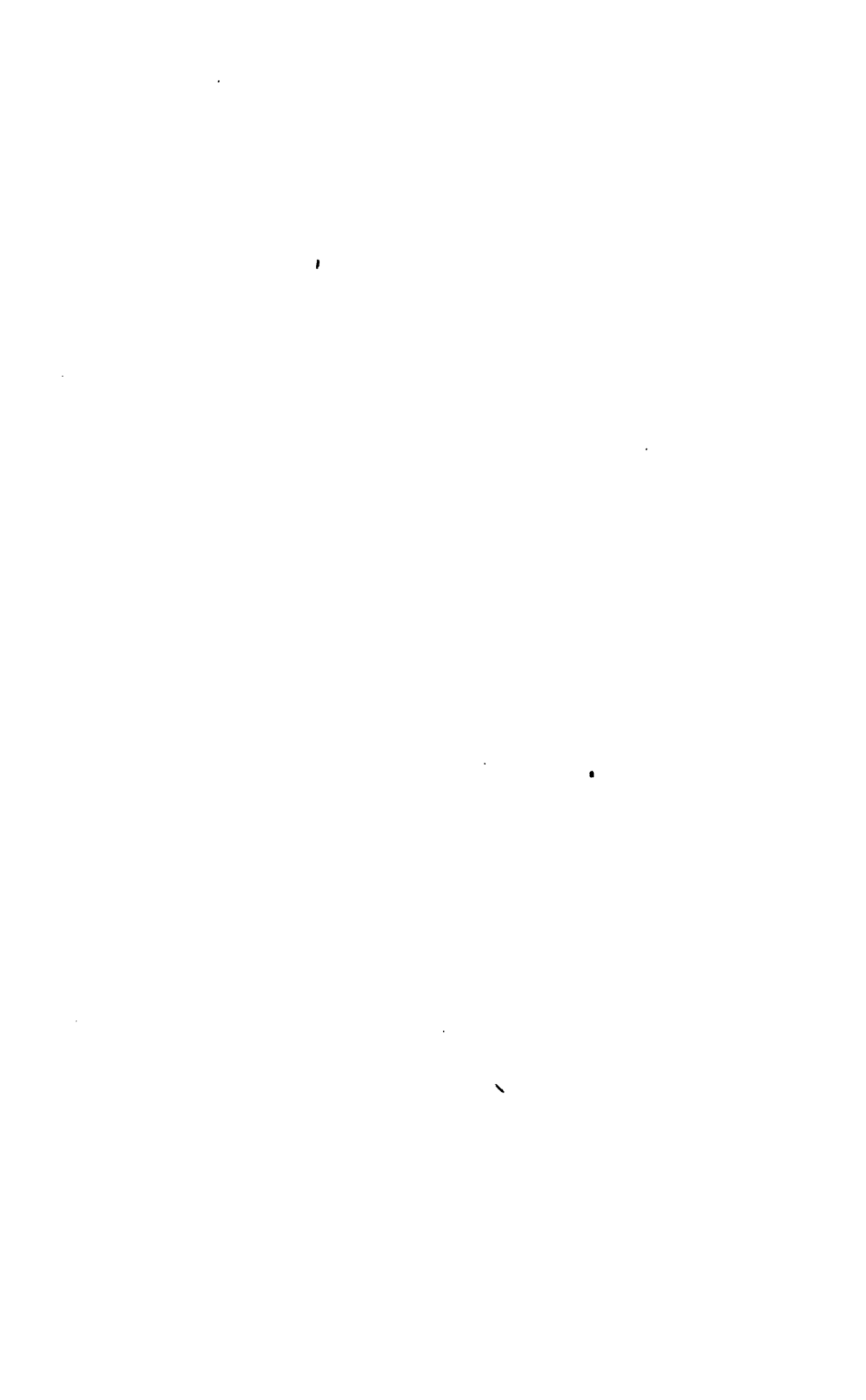
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